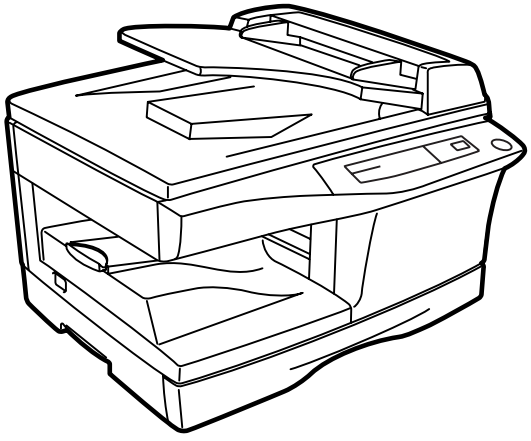
SHARP SERVICE MANUAL

CODE: 00ZAL1250/A1E



DIGITAL COPIER

AL-1020
AL-1200
AL-1220
MODEL AL-1250

* This Service Manual describes only the differences from the AL-1000/1010. For the common items with the AL-1000/1010,please refer to the AL-1000/1010 manual.

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● PARTS GUIDE

Parts marked with "⚠" is important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safty and performance of the set.

SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

[1] GENERAL

1. General

This model is a digital personal copier produced with key words of “Comfort able copy, Clear copy, Easy copy” providing high copy performances and copy productivity.

2. Target User Copy Volume: Monthly Average

Copies: 400 ~ 800 (Max. 800)
Prints: 400 ~ 800 (Max. 800)

3. Main features

A. High-speed laser copying

- Since warm-up time is zero, copying can be started immediately after the power switch is turned on.
- First-copy time is only 9.6 seconds (normal mode).
- Copying speed is 10 copies/min. (AL-1020) or 12 copies/min. (AL-1220/AL-1250), which adapts to business use, allowing improvement of working efficiency.

B. High-quality digital image

- High-quality image copying at 600 dpi can be performed.
- In addition to the automatic exposure mode, the manual exposure can be adjusted in five steps.
- The photo mode copying function allows clear copying of delicate halftone original images such as monochrome photos and color photos.

C. Substantial copying functions

- Zoom copying from 50% to 200% in 1% increments can be performed.
- Continuous copying of maximum 99 sheets can also be performed.
- Automatic document feeding through the single pass feeder (SPF) can be performed.
- Toner save mode reduces toner consumption by approximately 10%.
- User programs allow setting/modification of functions for customer’s needs.

D. Scan once/Print many

This copier is equipped with a 1-page memory buffer. This Memory allows the copier to scan an original 1 time only and make up to 99 copies. This feature allows for improved workflow, reduced operating noise from the copier and reduced wear and tear on the scanning mechanism. This feature provides for a higher reliability.

E. Printer feature

The AL-1250 copier can be used as a laser printer. The AL-1020 and AL-1220 copiers can be used as a laser printer by installing an optional printer upgrade kit.

F. Environmentally friendly design

Paper output tray is housed in the copier for space saving.
Preheat mode and auto power shut-off mode are provided to reduce power consumption in standby mode.

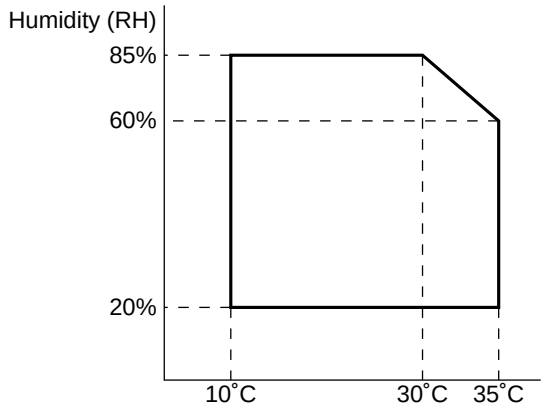
4. Environmental

The environmental conditions for assuring the copy quality and the machine operations are as follows:

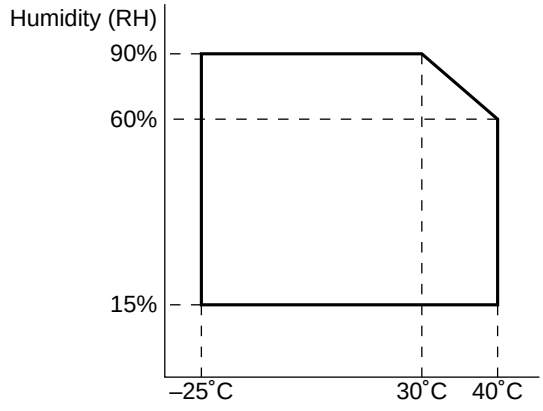
A. Normal operating condition

Temperature:20˚C~25
Humidity:65 ± 5%RH

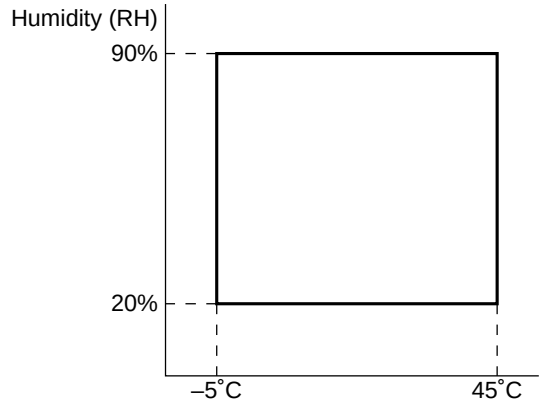
B. Acceptable operating condition



C. Optical condition



D. Supply storage condition



[2] SPECIFICATIONS

1. Basic specification

Item	AL-1020	AL-1220	AL-1250	AL-1200
External dimensions (W × D × H) (mm)	H379 × W518 × D477 mm	←	H464 × W518 × D477 mm	H293 × W518 × D445 mm
Weight	21.5 kg	21.5 kg	24.5 kg	18.0 kg

2. Operation Specification

Section item		Details	AL-1020	AL-1220	AL-1250	AL-1200
Paper feed section	Paper feed system		1 tray (250 sheet) + Multi bypass (50 sheet)	←	2 tray (250 sheet × 2) + Multi bypass (50 sheet)	1 tray (250 sheet) + Multi bypass (50 sheet)
Electrical section	Power source	Voltage	100V 110V 120/127V 230V 240V	←	←	←
		Frequency	Common use for 50 and 60 Hz	←	←	←
	Power consumption	Max	1000 W	←	←	←
		Average (during copying)	275 Wh/H *1)	285 Wh/H *1)	285 Wh/H *1)	270 Wh/H
		Average (stand-by)	70 Wh/H *1)	←	←	←
		Pre-heat mode	40 Wh/H *1)	←	←	←
		Auto power shut-off mode	18 Wh/H *1)	←	←	←
Installed memory			6 MB	←	←	Not Available

*1) May fluctuate due to environmental conditions and the input voltage.

3. Copy performance

Section item		Item	AL-1020	AL-1220	AL-1250	AL-1200
Copy speed	First copy time	Tray paper feed	9.6 sec. (Pre-heat mode: 16 sec. or delow/Auto power-shut-off mode: 23 sec. or delow Feed from Tray1/Scan Once Print Many Mode: 13.9 sec	←	←	←
		Manual paper feed	Single: 10 sec./Multi: 8.0 (Pre-heat mode: 16 sec.)	←	←	←
		SPF	Optic at Scanning Position: 11.5 sec Optic at Home Position: 13.0 sec	←	←	— Not Available
AB system: A4 (Landscape)	Copy speed (CPM)	Same size	10	12	←	←
		Enlargement	10	12	←	←
		Reduction	10	11	←	←
B5 (Landscape)	Copy speed (CPM)	Same size	10	12	←	←
		Enlargement	10	12	←	←
		Reduction	10	12	←	←
Inch system 8-1/2" × 14" (Landscape)	Copy speed (CPM)	Same size	10	10	←	←
		Enlargement	10	10	←	←
		Reduction	10	10	←	←
8 1/2" × 11" (Landscape)	Copy speed (CPM)	Same size	10	12	←	←
		Enlargement	10	12	←	←
		Reduction	10	12	←	←
Void	Void area	leading edge	1 ~ 255 4 mm	←	←	←
		Tailing edge	4 mm or less	←	←	←
		Side void area	4 mm or less (per side)	←	←	←
	Image loss	leading edge	Same size: 3.0 mm or less	←	←	←
			Enlarge (200): 1.5 mm or less	←	←	←
			Reduction (50): 6.0 mm or less	←	←	←
		Trailing edge	Same size: 4.0 mm or less	←	←	←
			Enlarge (200): 4.0 mm or less	←	←	←
			Reduction (50): 4.0 mm or less	←	←	←
		Side void area (per side)	Same size: 2.0 mm or less	←	←	←
			Enlarge (200): 2.0 mm or less	←	←	←
			Reduction (50): 2.0 mm or less	←	←	←

4. GDI Printer Specification (Standard for AL-1250, Option for AL-1020/1220)

Printer speed	WPPM (TBD) (A4/8-1/2 × 11, Sharp original)
First Print time	9.6 sec (A4/8-1/2 × 11, Not include communication time to the host PC and the set up time of polygon mirror)
CPU	None
Memory	4 MB • 6 MB
Interface	IEEE1284
Emulation	Sleek type GDI
Interface Font	None
Resolution	600 dpi
Operation System Compatibility	Win 3.1, WFW 3.11, Win 95, Win 98, Win NT 4.0
Minimum System Requirements	Win 3.1: 486 or better processor, 8 MB Ram (16 recommended) 30 MB of additional HD Space (+5 MB for Win 32s installation) Win 95: 486 or better processor, 8 MB Ram (16 recommended) 30 MB of additional HD Space. Win 98: 486 DX or better processor, 16 MB Ram (32 recommended) 30 MB of additional HD Space. NT 4.0: 486 or better processor, 8 MB Ram (16 recommended) 30 MB of additional HD Space.

5. Other

AL-1020	10cpm/MB/SOPM/SPF
AL-1220	12cpm/MB/SOPM/SPF
AL-1250	12cpm/MB/SOPM/SPF/GDI/2nd

*) The above models allow to use the SOPM function from the SPF.

A. SOPM function

(1) The SOPM function is effective either in the OC copy mode or in the SPF copy mode.
(2) The SOPM in the SPF copy mode: Even when a document is set on the document table and the SPF mode lamp is lighted, the quantity display remains unchanged (does not turn to “1”). Under that condition, press the quantity set key to set the quantity.
(3) Basic operation: The first document is read and data are stored in the memory and copies of the set quantity are made.
If there is the second document, it is read and the data are stored in the memory and copies of the set quantity are made similarly.
This procedure is repeated until the end of the documents.

B. 2nd cassette door

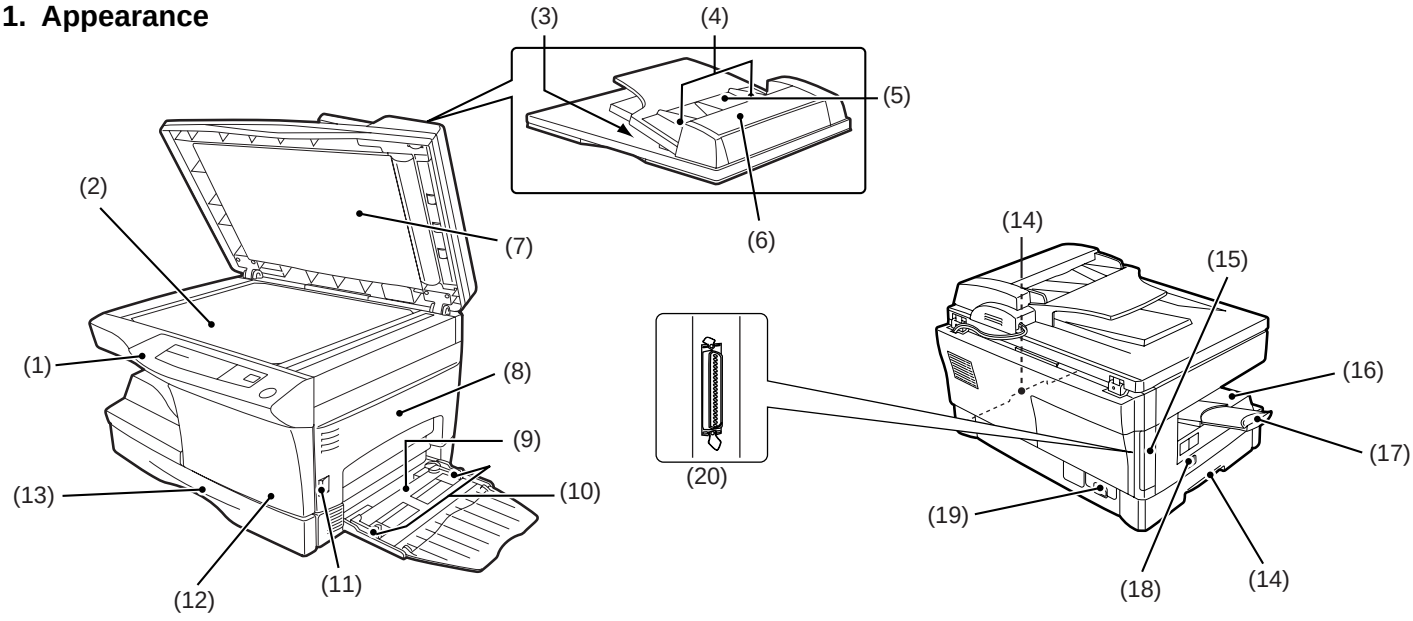
(1) The sensor output when the 2nd cassette door is open is the same as that when PPD3 is ON. Therefore, when the initial operation is made (the power is turned on and the side door is opened/closed) with the 2nd door open, the JAM lamp will light up.

6. AL-1200 specifications

The AL-1200 is the 12 sheets/min model of the AL-1010.
The Specifications are the same as those of the AL-1010, except for the copy speed and the average power consumption during copying (270Wh/H (*1)).
Please refer to the Service Manual of the AL-1010.
(*1) Depends on the operating conditions and the input voltage.

[3] EXTERNAL VIEWS AND INTERNAL STRUCTURES

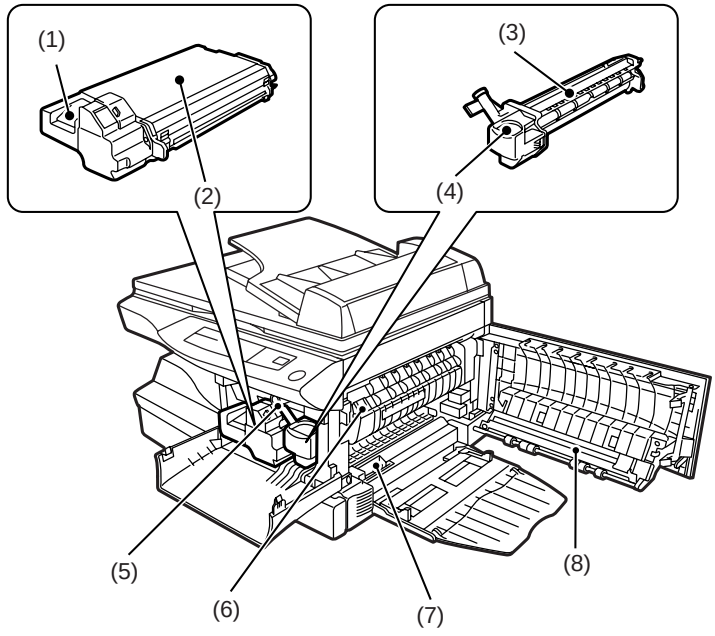
1. Appearance



(1)	Operation panel	(2)	Original table	(3)	SPF exit area
(4)	Original guides	(5)	Document feeder tray	(6)	Feeding roller cover
(7)	Original cover	(8)	Side cover	(9)	Bypass tray
(10)	Bypass tray guides	(11)	Side cover open button	(12)	Front cover
(13)	Paper tray*1	(14)	Handle	(15)	Cover for optional printer interface*2
(16)	Paper output tray	(17)	Paper output tray extension	(18)	Power switch
(19)	Power cord socket	(20)	Parallel interface connector*3		

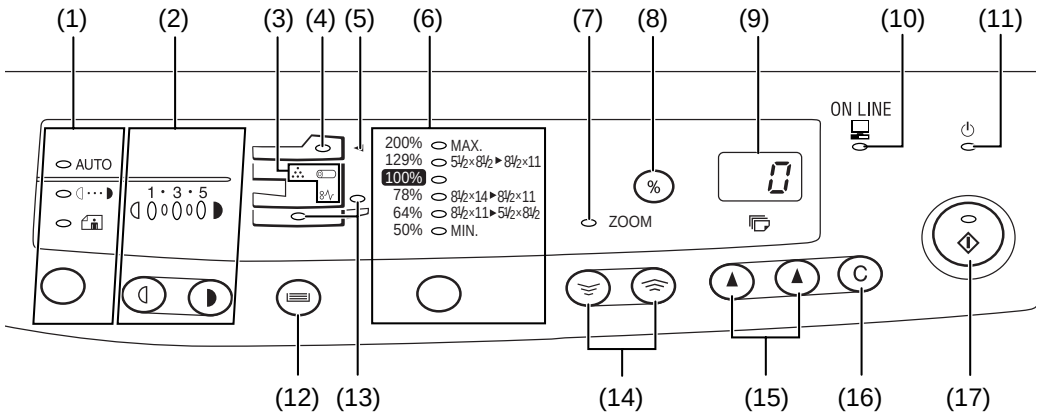
*1 The AL-1250 is equipped with two paper trays.
*2 (AL-1020/AL-1220 only) (For the AL-1020/AL-1220, a printer upgrade kit is optional.)
*3 AL-1250 only

2. Internal



(1)	TC cartridge lock release button	(2)	TD cartridge	(3)	Drum cartridge
(4)	Drum cartridge handle	(5)	Paper feed roller	(6)	Fusing unit release lever
(7)	Charger cleaner	(8)	Transfer charger		

3. Operational panel



(1)	Exposure mode selector key and indicators	(2)	Light and dark keys and exposure indicators	(3)	Alarm indicators*1
(4)	SPF indicator	(5)	SPF misfeed indicator	(6)	Copy ratio selector key and copy ratio indicators
(7)	Zoom indicator	(8)	Copy ratio display (%) key	(9)	Display
(10)	ON LINE indicator	(11)	Power save indicator	(12)	Tray select key
(13)	Paper feed location indicators	(14)	Zoom keys	(15)	Copy quantity keys
(16)	Clear key	(17)	Print key and ready indicator		

*1

Drum replacement required indicator
When the drum counter reaches 17,000 copies, the indicator lights up. After 1,000 additional copies are made, the indicator starts blinking and machine will not-operate (after current job) until a new cartridge is installed.

Misfeed indicator

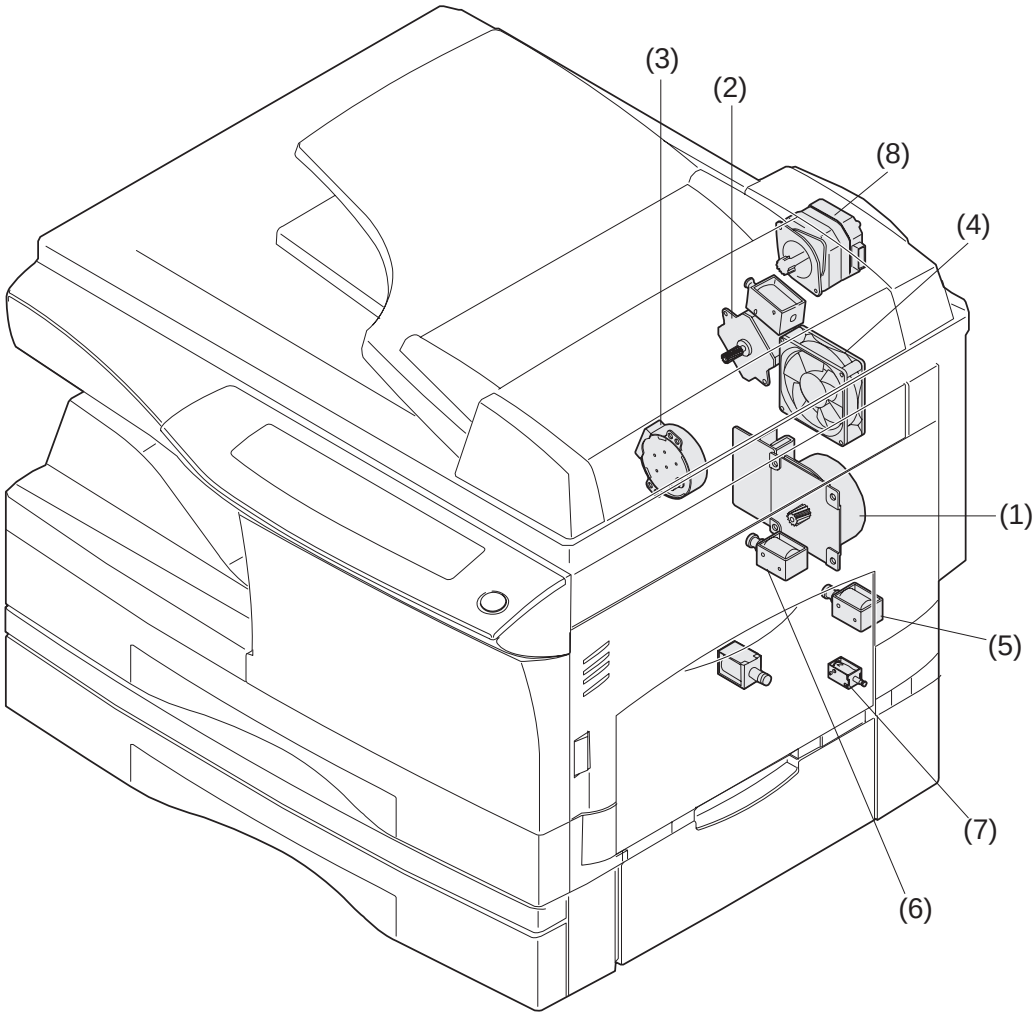
TD cartridge replacement required indicator
When toner density is lower than a specified level, the TONER DEVELOPER CARTRIDGE REPLACEMENT indicator lights up to warn the user.
If toner is not added after approximately 10 sheets are copied, the indicator starts blinking and machine starts to supply toner.(Toner Developer cartridg replacement indicator keeps lighting up)
If toner density is not back to specific level after two minutes, the READ indicator goes out and Toner Developer indicator starts blinking, and the copier stops.

*2 ON: Indicates that the machine is in the energy saving (pre-heat) mode.
Blink: Indicates that the machine is in the process of resetting from the energy saving mode or just after supplying the power.
OFF: Indicates that resetting from the energy saving mode is completed and that the fusing temperature is in ready state.
The combinations of the above display lamps are as follows: (● = ON, × = OFF)

Lamp	Immediately after power ON	Ready	Copying
Pre-heat lamp	Blink	×	×
Ready lamp	●	●	×
Other lamps	●	●	●

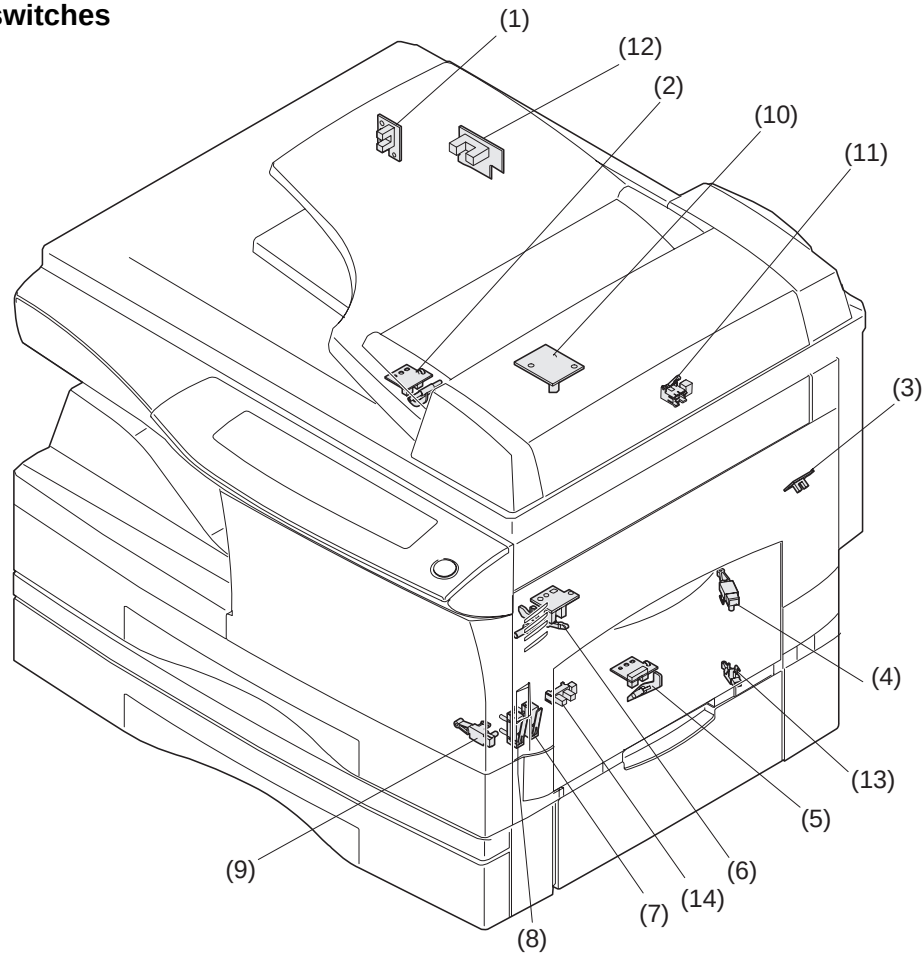
Lamp	Energy saving mode (Pre-heating)	Energy saving mode (Auto power shut off)	Resetting from energy saving mode	Copy is started during resetting from energy saving mode
Pre-heat lamp	●	●	Blink	Blink
Ready lamp	●	×	●	×
Other lamps	●	×	●	●

4. Motors and solenoids



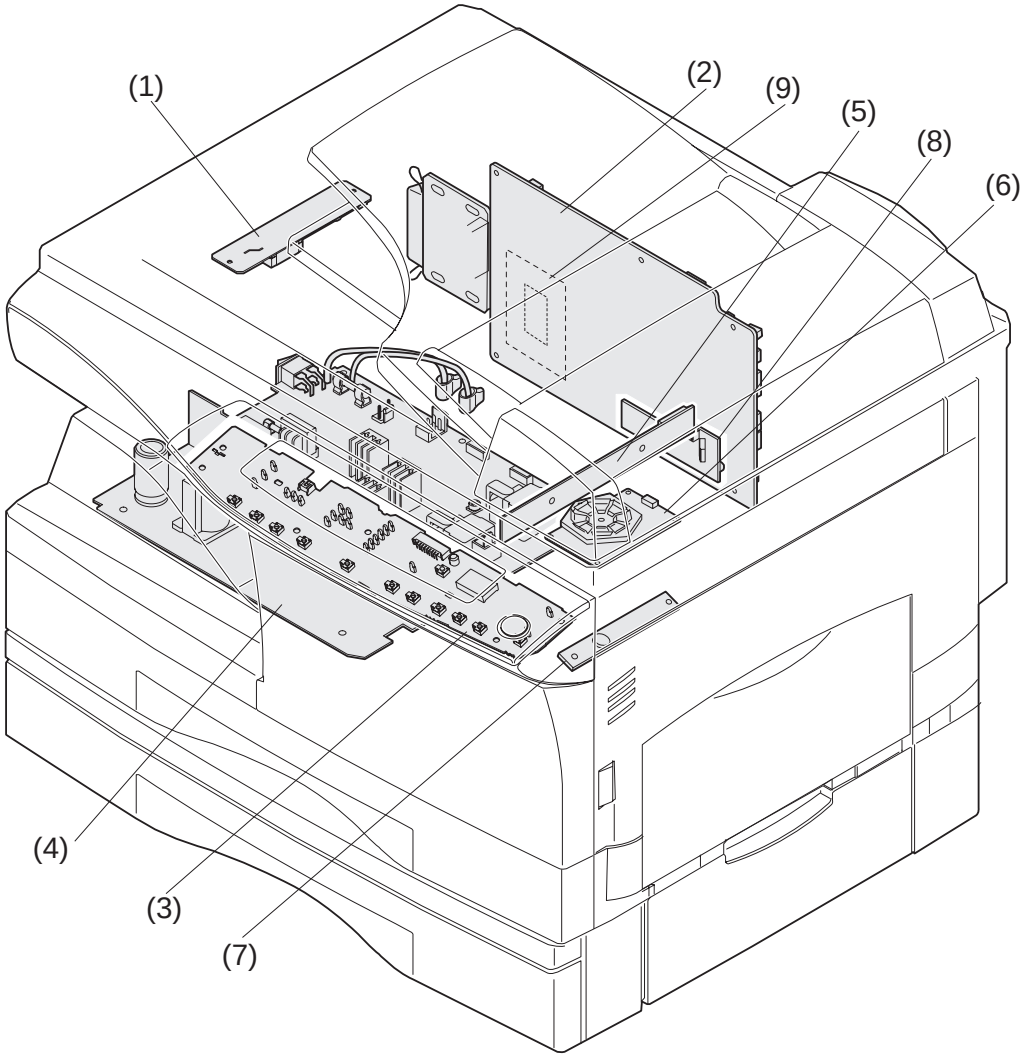
No.	Part name	Control signal	Function,operation
(1)	Main motor	MM	Drives the copier.
(2)	Mirror motor	MRMT	Drives the optical mirror base (scanner unit).
(3)	Toner motor	TM	Supplies toner.
(4)	Cooling fan motor	VFM	Cools the optical section.
(5)	Resist roller solenoid	RRS	Resist roller rotation control solenoid
(6)	Paper feed solenoid	CPFS1	Cassette Paper feed solenoid
(7)	Multi paper feed solenoid	MPFS	Multi manual pages feed solenoid
(8)	SPF motor	SPFM	Drives the single pass feeder

5. Sensors and switches



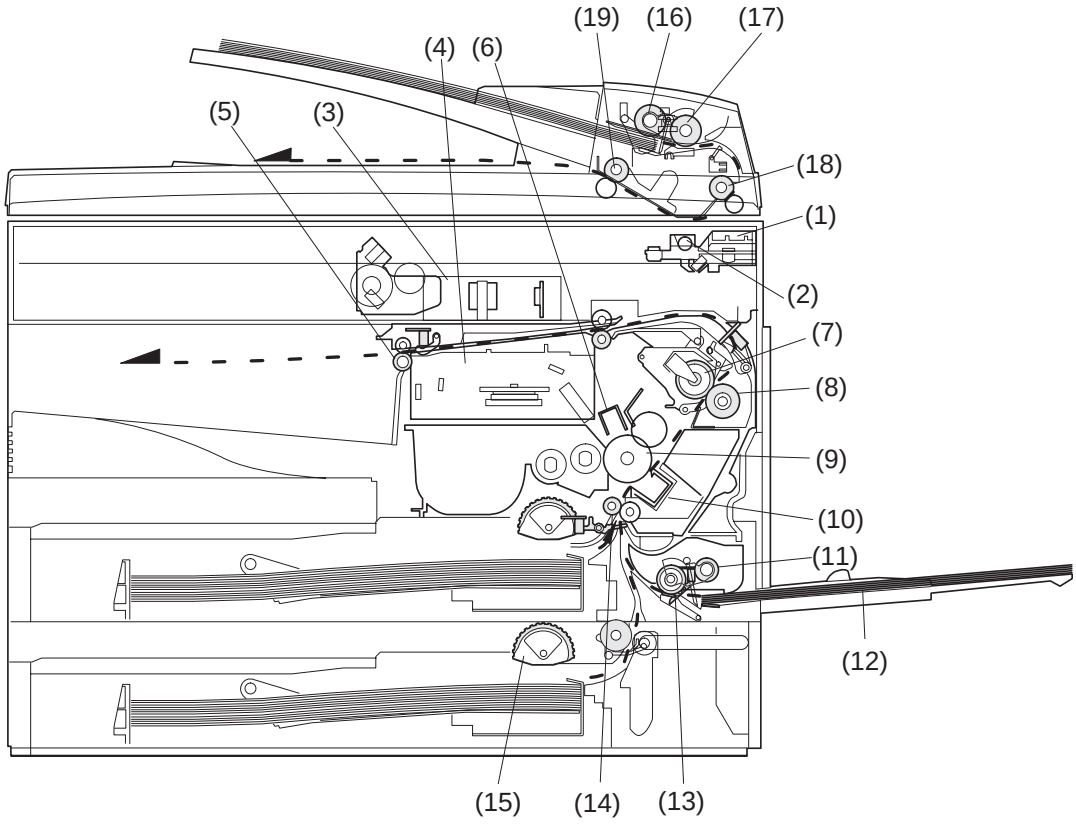
No.	Name	Signal	Type	Function	Output
(1)	Mirror home position sensor	MHPS	Transmission sensor	Mirror (scanner unit) home position detection	“H” at home position
(2)	POD sensor	POD	Transmission sensor	Paper exit detection	“H” at paper pass
(3)	PPD2 sensor	PPD2	Transmission sensor	Paper transport detection 2	“L” at paper pass
(4)	Cassette detection switch	CED1	Microswitch	Cassette installation detection	“H” at cassette insertion
(5)	Manual feed detection switch	MFD	Transmission sensor	Manual feed paper detection (single only)	“L” at paper detection
(6)	PPD1 sensor	PPD1	Transmission sensor	Paper transport detection 1	“L” at paper pass
(7)	Door switch	DSW	Micro switch	Door open/close detection (safety switch for 5V)	1 or 0V of 5V at door open
(8)	Door switch	DSW	Micro switch	Door open/close detection (safety switch for 24V)	1 or 0V of 24V at door open
(9)	Drum reset switch	DRST	Micro switch	New drum detection switch	Instantaneously “H” at insertion of new drum
(10)	SPF sensor	SPID/SD SW	Transmission sensor	Paper entry detection Cover open/close detection	“L” at paper pass
(11)	SPPD sensor	SPPD	Transmission sensor	Paper transport detection	“L” at paper pass
(12)	SDOD sensor	SDOD	Transmission sensor	SPF open/close detection Book sensor	“L” at paper pass
(13)	2nd cassette	DSW	Micro switch	2nd cassette door open detection	1 or 0V of 5V at door open
(14)	PPD3 sensor	PPD3	Transmission sensor	Paper transport detection 3	“L” at paper pass

6. PWB unit



No.	Name	Function
(1)	Exposure lamp invertor PWB	Exposure lamp (Xenon lamp) control
(2)	Main PWB (MCU)	Copier control
(3)	Operation PWB	Operation input/display
(4)	Power PWB	AC power input, DC voltage control, High voltage control
(5)	CCD sensor PWB	For image scanning
(6)	LSU motor PWB	For polygon motor drive
(7)	TCS PWB	For toner sensor control
(8)	LSU PWB	For laser control
(9)	Memory PWB 6MB	For memorying data

7. Cross sectional view



No.	Part name	Function and operation
(1)	Scanner unit	Illuminates the original with the copy lamp and passes the reflected light to the lens unit (CCD).
(2)	Exposure lamp	Exposure lamp (Xenon lamp) Illuminates original
(3)	Lens unit	Scans the original image with the lens and the CCD.
(4)	LSU (Laser unit)	Converts the original image signal into laser beams and writes onto the drum.
(5)	Paper exit roller	Roller for paper exit
(6)	Main charger	Provides negative charges evenly to the drum surface.
(7)	Heat roller	Fuses toner on the paper. (Teflon roller)
(8)	Pressure roller	Fuses toner on the paper. (Silicon rubber roller)
(9)	Drum	Forms images.
(10)	Transfer unit	Transfers images onto the drum.
(11)	Pickup roller	Picks up the manual feed paper. (In multi feed only)
(12)	Manual paper feed tray	Tray for manual feed paper
(13)	Manual paper feed roller	Transport the paper from the manual paper feed port.
(14)	PS roller unit	Takes synchronization between the lead edge and the rear edge of the paper.
(15)	Paper feed roller	Picks up a sheet of paper from the cassette.
(16)	Pickup roller	Picks up documents.
(17)	Separation roller	Separates documents to feed properly.
(18)	PS roller	Feeds documents to the scanning section.
(19)	Paper exit roller	Discharges documents.

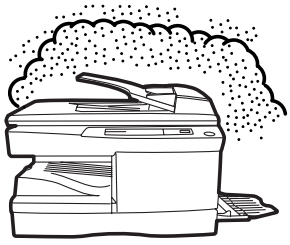
[4] UNPACKING AND INSTALLATION

1. A WORD ON COPIER INSTALLATION

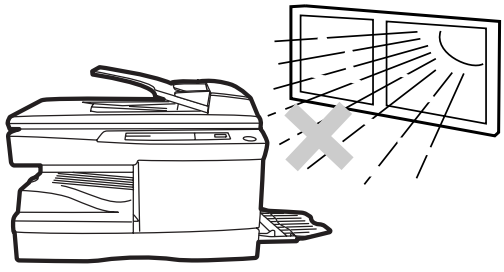
Improper installation may damage the copier. Please note the following during initial installation and whenever the copier is moved.

Do not install your copier in areas that are:

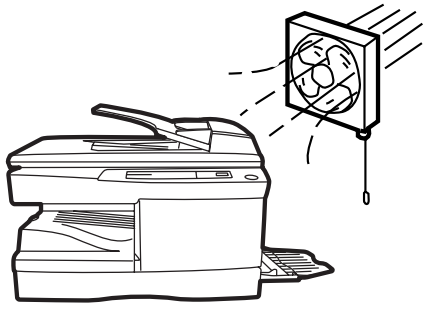
- damp, humid, or very dusty



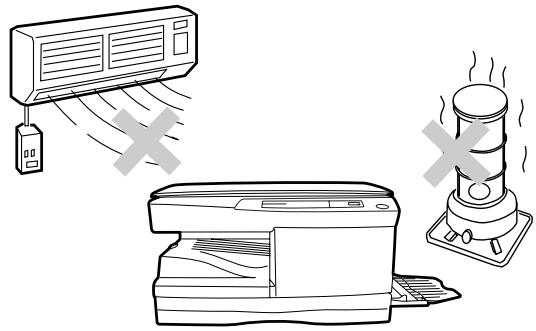
- exposed to direct sunlight



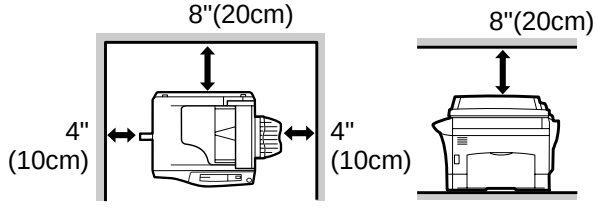
- poorly ventilated



- subject to extreme temperature or humidity changes, e.g., near an air conditioner or heater.

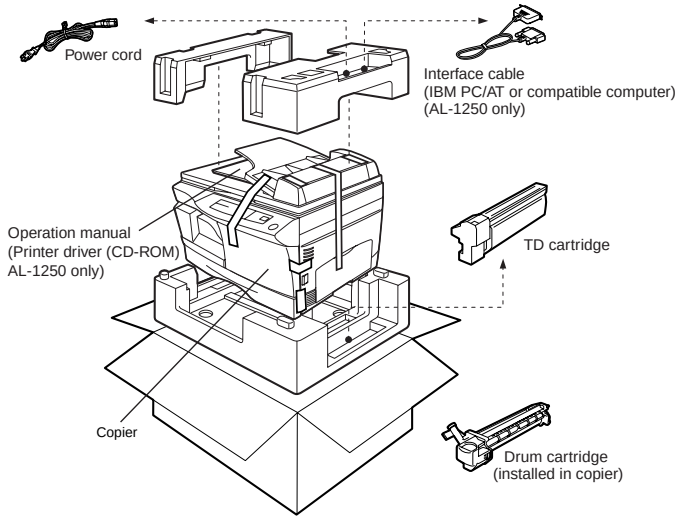


Be sure to allow the required space around the machine for servicing and proper ventilation.



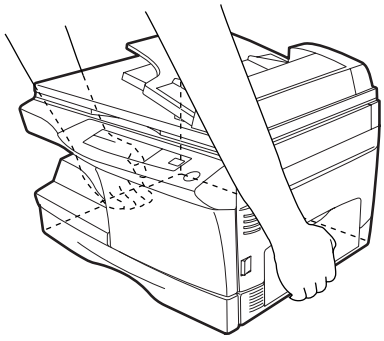
2. CHECKING PACKED COMPONENTS AND ACCESSORIES

Open the carton and check if the following components and accessories are included.



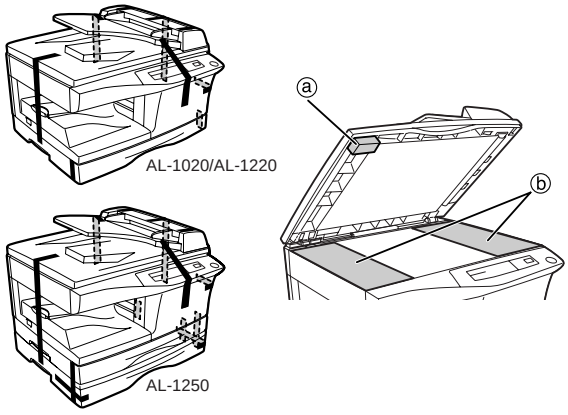
3. UNPACKING

Be sure to hold the handles on both sides of the copier to unpack the copier and carry it to the installation location.

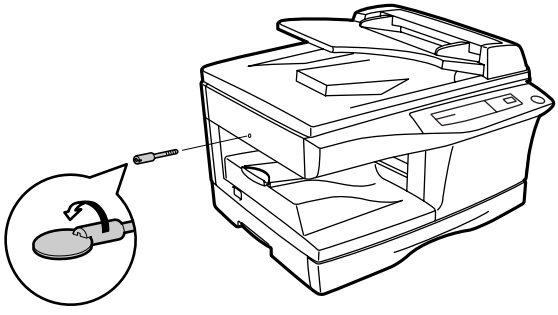


4. REMOVING PROTECTIVE PACKING MATERIALS

1) Remove pieces of tape and protective cover. Then open the original cover and remove protective materials (a) and (b).

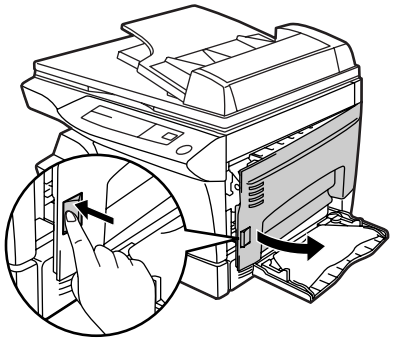


2) Use a coin (or suitable object) to remove the screw. Store the screw in the paper tray because it will be used if the copier has to be moved.

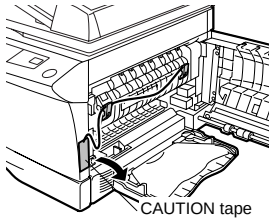


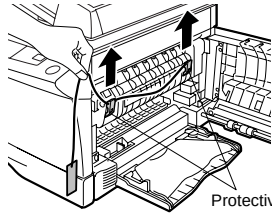
5. INSTALLING THE TD CARTRIDGE

1) Open the bypass tray and then open the side cover while pressing the side cover open button.

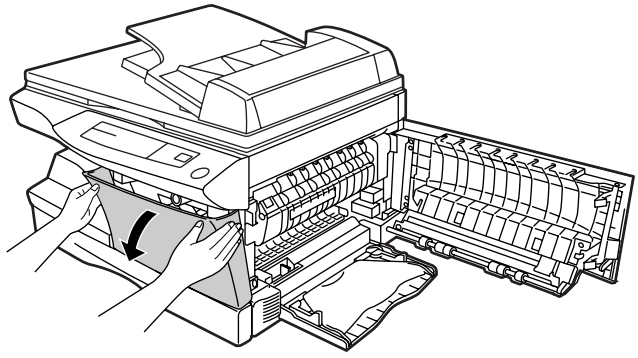


2) Remove the CAUTION tape from the front cover and remove the two protective pins from the fusing unit by pulling the strings upward one at a time.

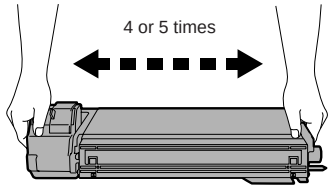




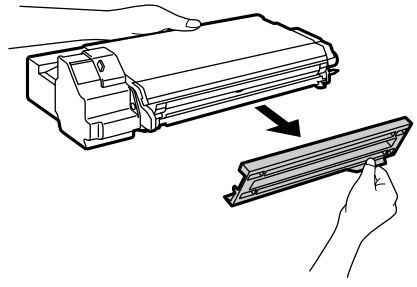
3) Push gently on both sides of the front cover to open the cover.



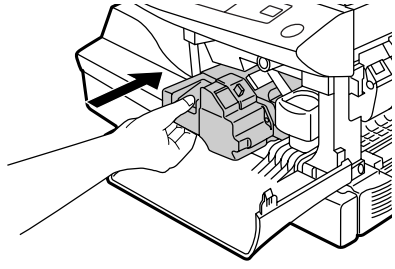
4) Remove the TD cartridge from the bag. Remove the protective paper. Hold the cartridge on both sides and shake it horizontally four or five times.



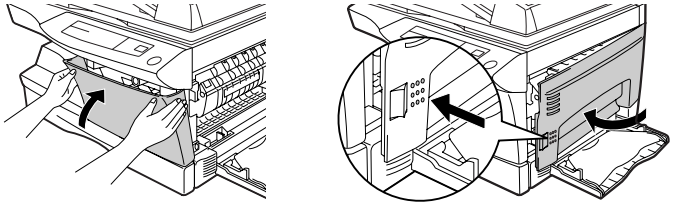
5) Hold the tab of the protective cover and pull the tab to your side to remove the cover.



6) Gently insert the TD cartridge until it locks in place.

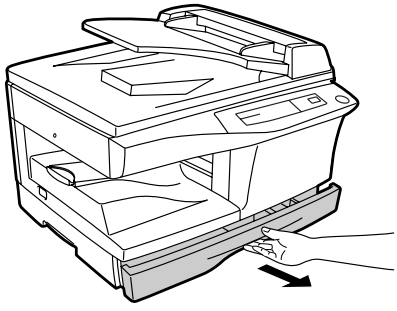


7) Close the front cover and then the side cover by pressing the round projections near the side cover open button.

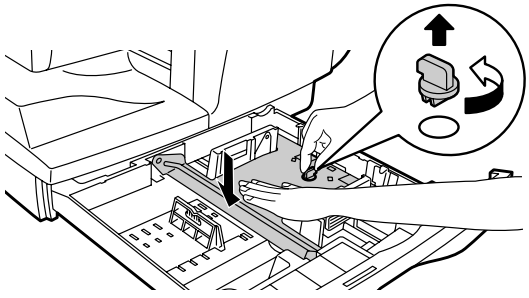


6. LOADING COPY PAPER (installing the paper tray)

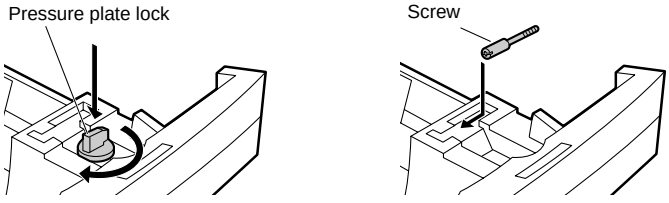
1) Raise the handle of the paper tray and pull the paper tray out until it stops.



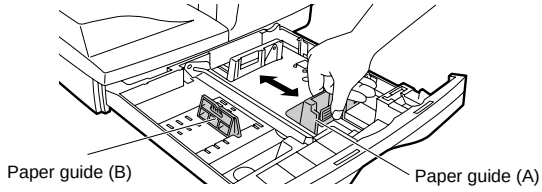
2) Remove the pressure plate lock. Rotate the pressure plate lock in the direction of the arrow to remove it while pressing down the pressure plate of the paper tray.



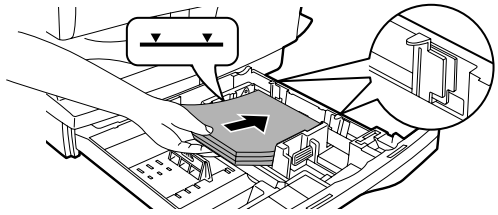
3) Store the pressure plate lock which has been removed in step 2 and the screw which has been removed when unpacking (see page 4-2, step 2 of REMOVING PROTECTIVE PACKING MATERIALS) in the front of the paper tray. To store the pressure plate lock, rotate the lock to fix it on the relevant location.



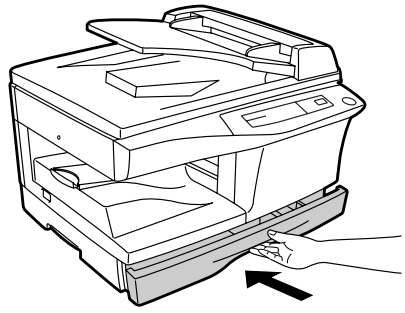
4) Adjust the paper guides on the paper tray to the copy paper width and length. Squeeze the lever of paper guide (A) and slide the guide to match with the width of the paper.
Move paper guide (B) to the appropriate slot as marked on the tray.



5) Fan the copy paper and insert it into the tray. Make sure the edges go under the corner hooks.

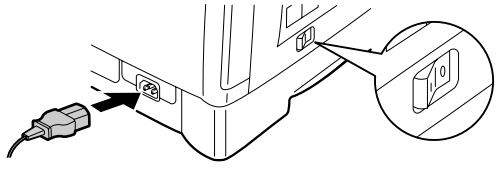


6) Gently push the paper tray back into the copier.



7. POWER TO COPIER

1) Ensure that the power switch of the copier is in the OFF position. Insert the attached power cord into the power cord socket at the rear of the copier.



2) Plug the other end of the power cord into the nearest outlet.

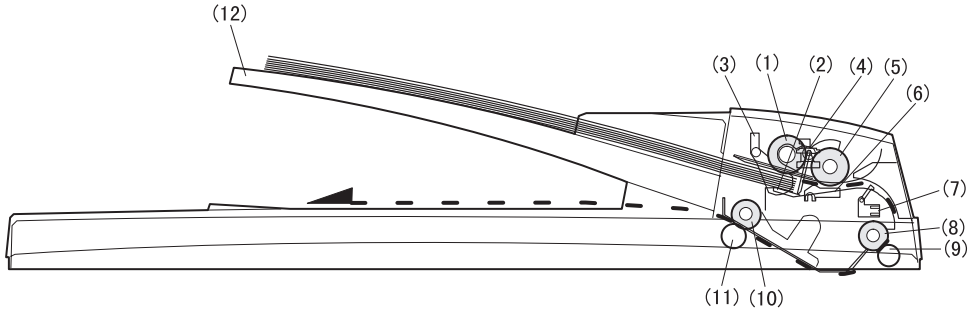
[5] OPERATIONAL DESCRIPTIONS

1. SPF section

A. Outline

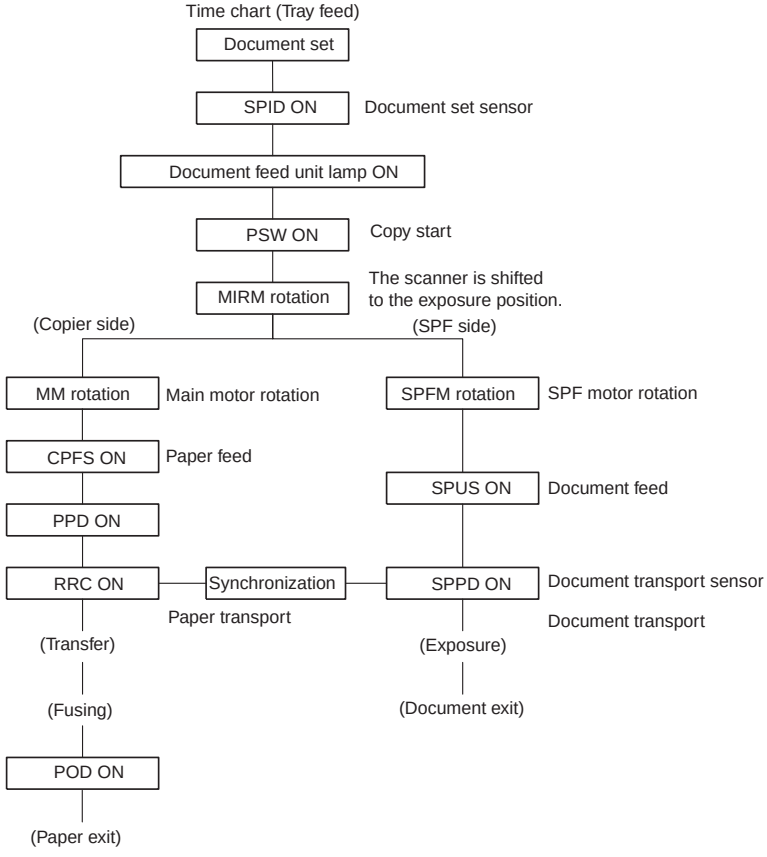
The SPF (Single Path Feeder) is installed to the AL-1000/1200 as a standard provision, and it automatically copies up to 30 sheets of documents of a same size. (Only one set of copies)

B. Document transport path and basic composition

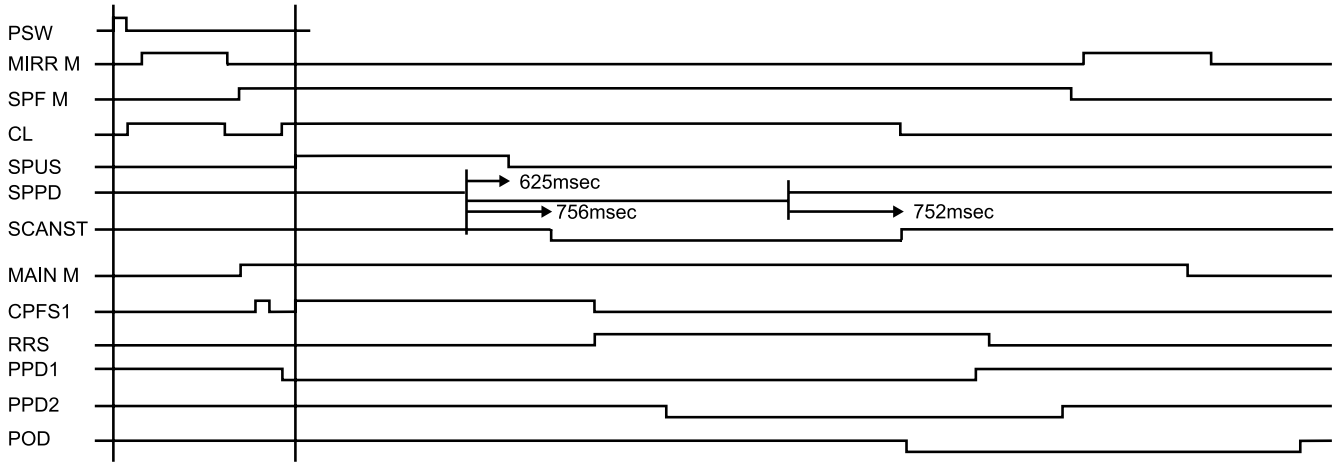


(1)	Pickup roller	(2)	Sheet of document for paper feed	(3)	Set detection ACT
(4)	Paper stopper	(5)	Document feed roller	(6)	Separation sheet
(7)	Paper entry sensor	(8)	PS roller D	(9)	Transport follower roller
(10)	Paper exit roller	(11)	Paper exit follower roller	(12)	Document tray

C. Operational descriptions



In the zooming mode, the magnification ratio in the sub scanning direction (paper transport direction) is adjusted by changing the document transport speed.



D. Cases where a document jam is caused

a. When SPPD is ON (document remaining) when the power is turned on.
b. When SPPD is not turned ON within about 1.5 sec (at 100% copy) after starting the document feed operation.
c. When SPPD is not turned on within about 4.7 sec (at 100% copy) after turning on SPPD.
d. When the SPF document jam release door or the OC cover is opened during document transport (SPF motor rotating).

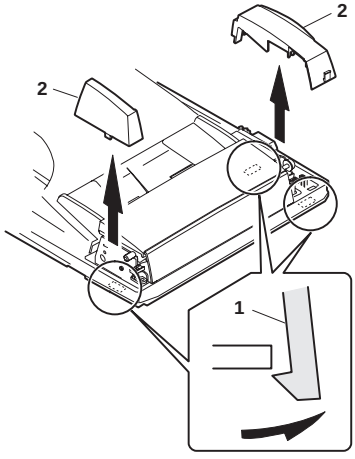
[6] DISASSEMBLY AND ASSEMBLY

1. SPF

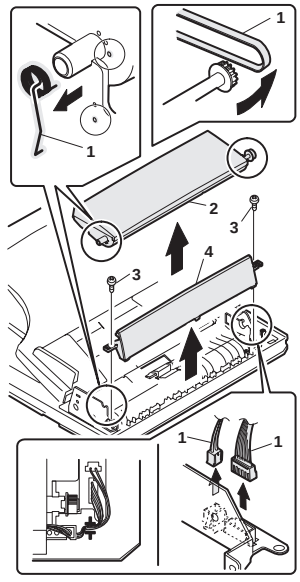
No.	Part name Ref.
A	Sensor PWB
B	Pickup solenoid
C	Clutch
D	Manual paper feed roller, pickup roller
E	Belt
F	SPF motor
G	Paper entry sensor
H	PS roller
I	Paper exit roller

Pickup unit removal

1) Remove three fixing pawls from the bottom of the machine.
2) Remove the front cover and the rear cover.



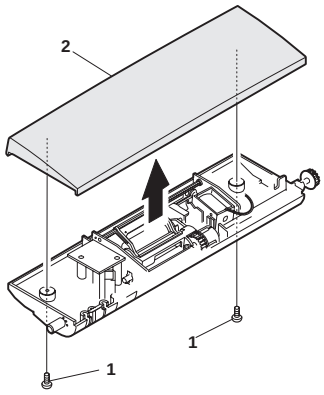
1) Remove the belt, the paper feed frame SP, and two harnesses.
2) Remove the pickup unit.



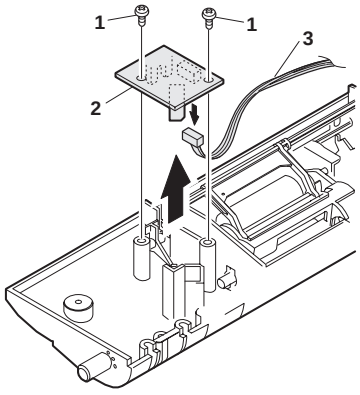
* When installing the parts, be careful of the hole position of the paper frame SP.

A. Sensor PWB

1) Remove two screws from the bottom of the pickup unit.
2) Remove the upper cover.

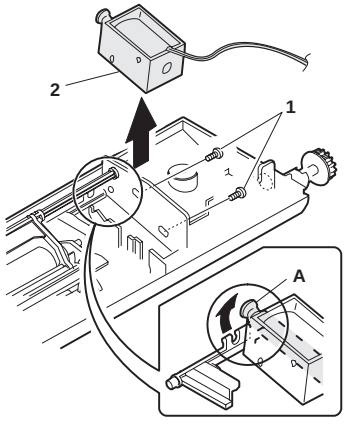


1) Remove two screws.
2) Remove the sensor PWB.
3) Remove the harness.



B. Pickup solenoid

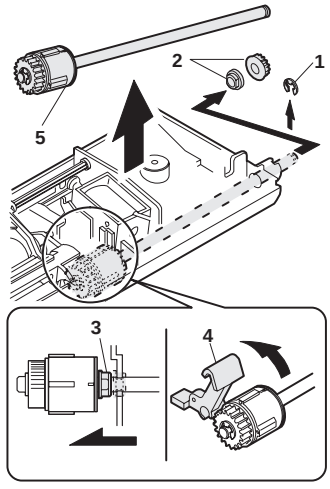
1) Remove two screws.
2) Remove the pickup solenoid



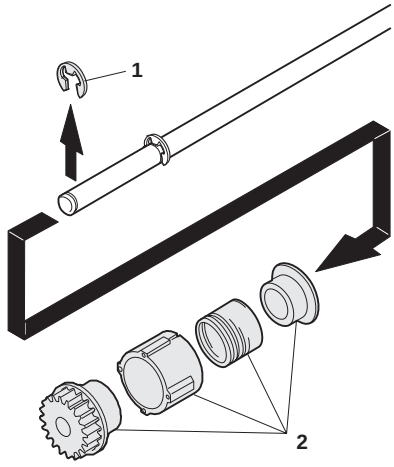
* When installing, hang iron core A on the solenoid arm.

C. Clutch

1) Remove the E-ring.
2) Remove the pulley and bush.
3) Slide the bush in the arrow direction.
4) Lift the clutch, and 5) remove the clutch.

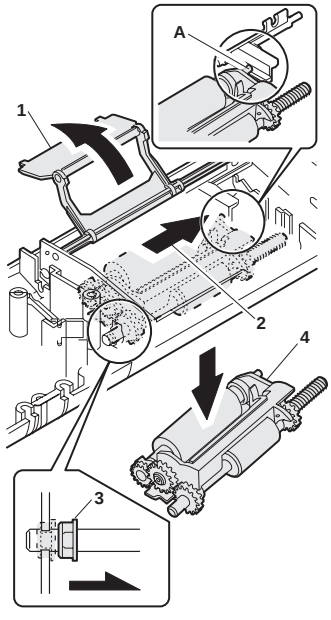


1) Remove the E-ring.
2) Remove the parts.



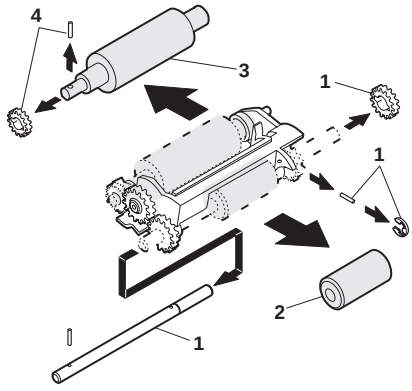
D. Manual paper feed roller, pickup roller

1) Lift the paper stopper.
2) Slide the takeup roller unit.
3) Slide the bush in the arrow direction.
4) Remove the takeup roller unit.



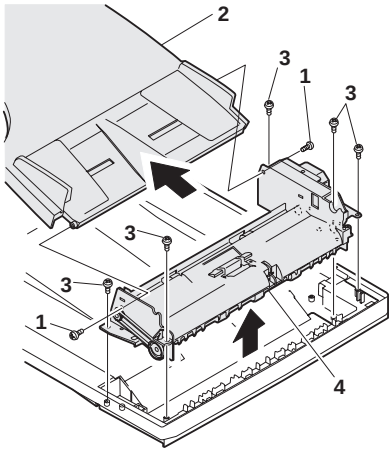
* When installing the takeup roller, hang the projection of the takeup roller unit on the solenoid arm.

1) Remove the parts.
2) Remove the manual paper feed roller.
3) Remove the pickup roller.
4) Remove the parts.



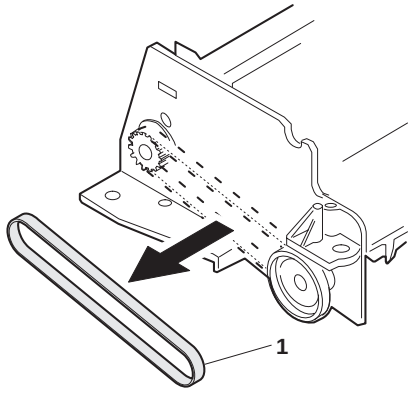
Transport unit removal

1) Remove two screws.
2) Remove the document tray unit.
3) Remove five screws.
4) Remove the transport unit.



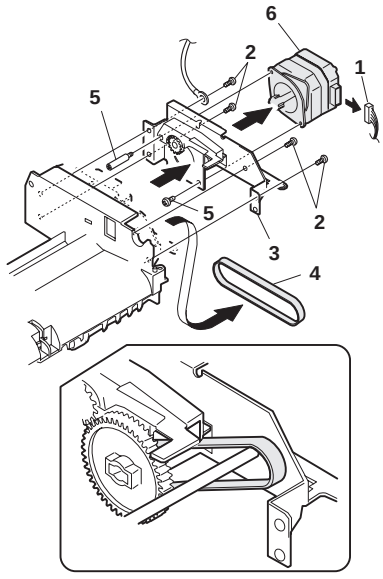
E. Belt

1) Remove the belt.



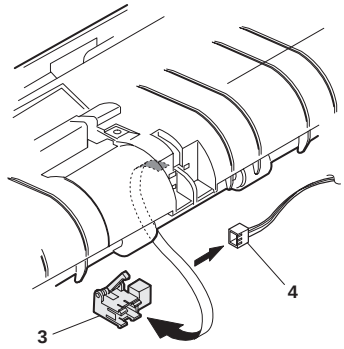
F. SPF motor

1) Remove the harness.
2) Remove four screws.
3) Remove the drive unit.
4) Remove the belt.
5) Remove two screws.
6) Remove the SPF motor.

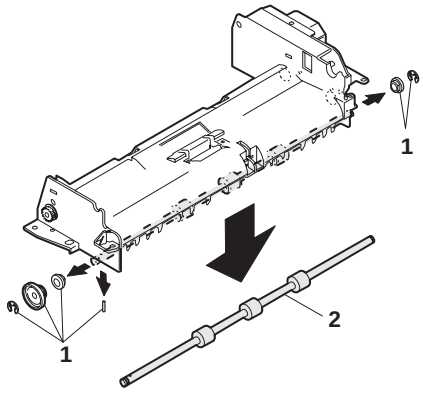


G. Paper entry sensor

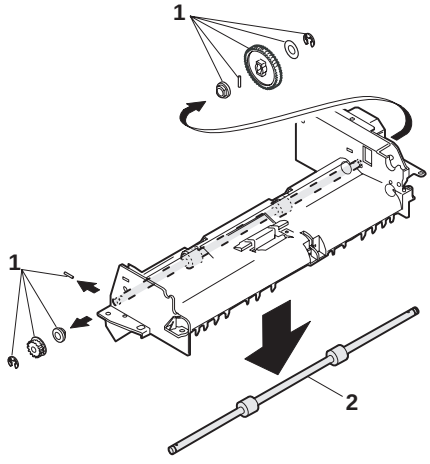
1) Loosen the screw.
2) Open the paper exit PG.
3) Remove the paper entry sensor.
4) Remove the harness.



H. PS roller
1) Remove the parts.
2) Remove the PS roller.



I. Paper exit roller
1) Remove the parts.
2) Remove the paper exit roller.

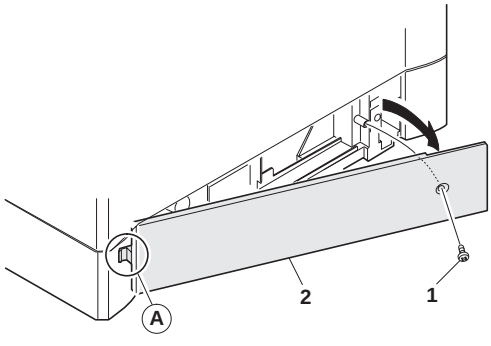


2. 2ND CASSETTE (AL-1250 only)

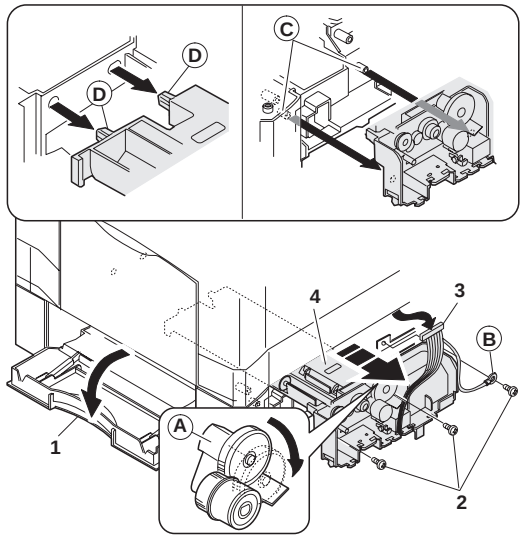
No.	Part name Ref.
A	Paper sensor
B	Cassette detection SW
C	Paper feed solenoid
D	Transport roller
E	Paper feed clutch
F	2nd paper feed roller

Paper feed unit removal
1) Remove the screw.
2) Remove the rear cover.

* When installing, engage the pawl and install the unit.



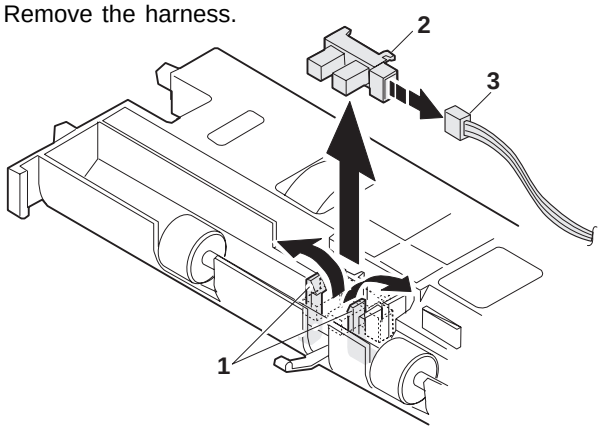
1) Open the right cabinet.
2) Remove three screws.
3) Remove one connector.
4) While tilting down the 2nd connection arm A, pull and remove the paper feed unit toward you.



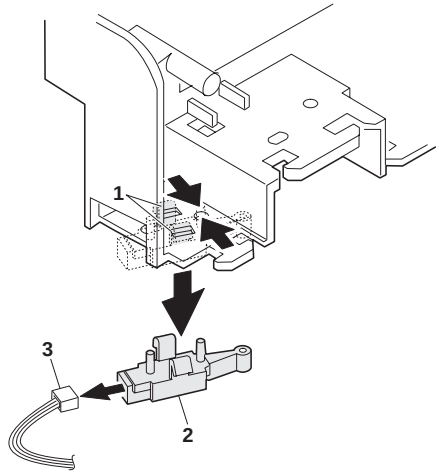
* When installing, securely insert two bosses C on the machine side and two bosses D on the paper feed unit side. Be sure to fix the earth B.

* Insert the 2nd page feed.

A. Paper sensor
1) Remove the pawl.
2) Remove the paper sensor.
3) Remove the harness.

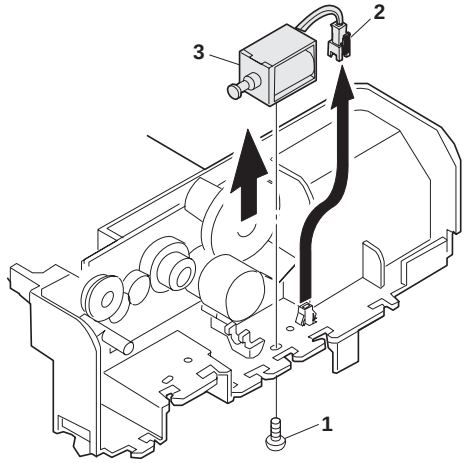


B. Cassette detection SW
1) Remove the pawl.
2) Remove the cassette detection SW.
3) Remove the harness.



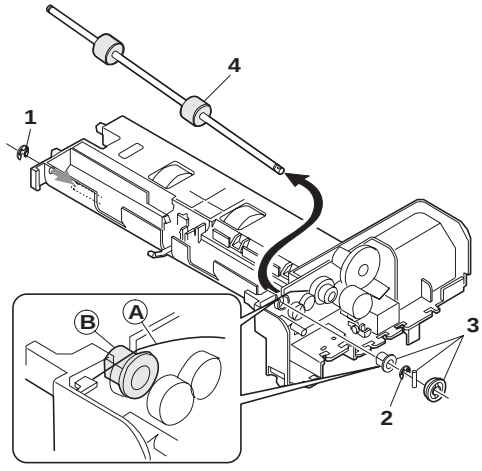
C. Paper feed solenoid

1) Remove the screw.
2) Remove the connector.
3) Remove the paper feed solenoid.



D. Transport roller

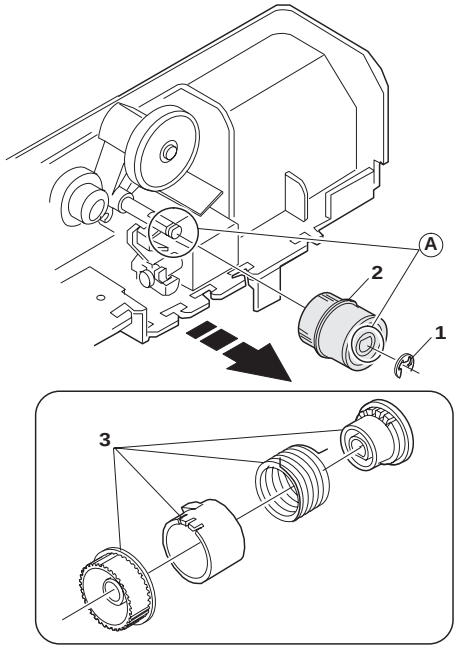
1) Remove two E-rings.
2) Remove the transport roller.



* Install so that the earth spring A is brought into contact over bearing B.

E. Paper feed clutch

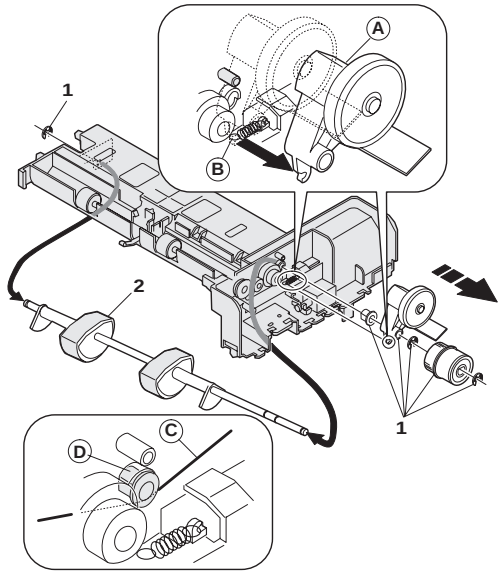
1) Remove the E-ring.
2) Remove the paper feed clutch.
3) Remove the parts.



* When installing, fit the cut surface A.

F. 2nd paper feed roller

1) Remove the E-ring and the parts.
2) Remove the 2nd paper feed roller.



* When installing, hang the 2nd connection arm on the 2nd connection arm SP B. Be sure to install so that the earth spring C is in contact under the bearing D.

[7] SIMULATION TROUBLE CODE

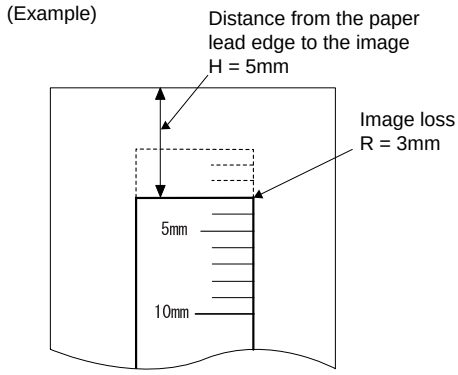
1. Contents of simulations

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th></tr>
<tr><td rowspan="7">2</td><td>2</td><td>SPF sensor status display
(Operation/Procedure)
ON/OFF of the SPF sensor is displayed with the lamps on the operation panel.
<table>
<tr><th>Sensor name</th><th>Display lamp</th></tr>
<tr><td>Document set sensor (SPID)</td><td>Developer cartridge replacement lamp</td></tr>
<tr><td>SPF document transport sensor (SPPD)</td><td>Jam lamp</td></tr>
<tr><td>SPF cover sensor (SCOD)</td><td>Photoconductor cartridge replacement lamp</td></tr>
<tr><td>SPF open/close sensor (SDSW)</td><td>SPF jam lamp</td></tr>
</table></td></tr>
<tr><td>3</td><td>SPF motor operation check
(Operation/Procedure)
When the start key is pressed, the SPF motor rotates for 10 sec at the speed corresponding to the currently set magnification ratio.</td></tr>
<tr><td>4</td><td>SPF paper feed solenoid (SPUS) operation check
(Operation/Procedure)
When the start key is pressed, the SPF paper feed solenoid repeats ON (500 ms) and OFF (500 ms) 20 times.</td></tr>
<tr><td>5</td><td>RSPF pressure release solenoid (SPFS) operation check
(Operation/Procedure)
When the start key is pressed, the RSPF document transport solenoid (SPFS) repeats ON (500 ms) and OFF (500 ms) 20 times.</td></tr>
<tr><td>6</td><td>RSPF resist clutch (SRRC) operation check
(Operation/Procedure)
When the start key is pressed, the RSPF resist clutch (SRRC) repeats ON (500 ms) and OFF (500 ms) 20 times.</td></tr>
<tr><td>7</td><td>RSPF gate solenoid (SGS) operation check
(Operation/Procedure)
When the start key is pressed, the RSPF gate solenoid (SGS) repeats ON (500 ms) and OFF (500 ms) 20 times.</td></tr>
<tr><td rowspan="2">26</td><td>2</td><td>SPF setting
(Operation/Procedure)
1. When this simulation is executed, the currently set code number of SPF is displayed.
2. Enter the code number and press the start key. The setting is changed.
<table>
<tr><th>Code number</th><th>SPF</th></tr>
<tr><td>0</td><td>Without SPF</td></tr>
<tr><td>1</td><td>With SPF</td></tr>
<tr><td>2</td><td>With RSPF</td></tr>
</table></td></tr>
<tr><td>3</td><td>Second cassette setting
(Operation/Procedure)
1. When this simulation is executed, the currently set code number of the second cassette is displayed.
2. Enter the code number and press the start key. The setting is changed.
<table>
<tr><th>Code number</th><th>Second cassette</th></tr>
<tr><td>0</td><td>Without second cassette</td></tr>
<tr><td>1</td><td>With second cassette</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th></tr>
<tr><td>26</td><td>43</td><td>Side void amount setting
(Operation/Procedure)
1. When this simulation is executed, the currently set code number of the side void amount is displayed.
2. Enter the code number and press the start key. The setting is changed.
<table>
<tr><th>Code number</th><th>Setting</th></tr>
<tr><td>0</td><td>0 mm</td></tr>
<tr><td>1</td><td>0.5 mm</td></tr>
<tr><td>2</td><td>1.0 mm</td></tr>
<tr><td>3</td><td>1.5 mm</td></tr>
<tr><td>4</td><td>2.0 mm *Default</td></tr>
<tr><td>5</td><td>2.5 mm</td></tr>
<tr><td>6</td><td>3.0 mm</td></tr>
<tr><td>7</td><td>3.5 mm</td></tr>
<tr><td>8</td><td>4.0 mm</td></tr>
<tr><td>9</td><td>4.5 mm</td></tr>
<tr><td>10</td><td>5.0 mm</td></tr>
</table></td></tr>
<tr><td></td><td>44</td><td>SPF document rear edge detection setting (Used to erase the document rear edge shade generated in SPF reduction copy.)

When this simulation is executed, the currently set code number is displayed. Enter the desired code number and press the START key, and the display will be changed. The document rear edge scanning area in SPF reduction (less than 100%) copy is changed.

The code number is changeable in the range of 0 - 8.
The default value is 4, and 2 mm of the document rear edge is cut.
When the value is changed by 1, the area is changed by 1 mm.</td></tr>
<tr><td>50</td><td>1</td><td>Lead edge image position and paper lead edge/rear edge void adjustment
(Outline)
This adjustment is used to adjust the copy image position and lead edge/rear edge void amount on the copy paper by adjusting the image scan start position and the print start position (resist roller ON timing) at 100%.
(Operation/Procedure)
1. When this simulation is executed, the currently set value is displayed in two digits. (Center value: 50)
2. When the copy mode select key is pressed, each setting mode and the display are changed.
* The selected adjustment mode is indicated by the lamps as shown in the table below.
3. Enter the adjustment value with the 10-key and press the start key. The set value is stored and a copy is made. (When the set value is increased by 1, the void amount is shifted by 0.1 mm.)
4. When the clear key is pressed, the set value is stored and the simulation mode is terminated.
<table>
<tr><th>Adjustment mode</th><th>Display lamp</th></tr>
<tr><td>Print start position</td><td>AE lamp</td></tr>
<tr><td>Image lead edge void amount</td><td>TEXT lamp</td></tr>
<tr><td>Image scan start position (Scanner)</td><td>PHOTO lamp</td></tr>
<tr><td>Image rear edge void amount</td><td>AE, TEXT, PHOTO lamp</td></tr>
<tr><td>SPF image scan start position</td><td>AE, TEXT lamp</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th></tr>
<tr><td>50</td><td>1</td><td>(Adjustment method)
1. Set the print start position (A: AE ON), the lead edge void amount (B: TEXT ON), the scanning start position (C: PHOTO ON) to zero and make a copy of a scale at 100%.
2. Measure the image loss R (mm) of the scale.
Set as C = 10 × R (mm). (Example: Set to 30.)
∗ When C is increased by 10, the image loss is decreased by 1 mm. (Default: 5)
3. Measure the distance H (mm) from the paper lead edge to the image print start position.
Set as A = 10 × R (mm). (Example: Set to 50.)
∗ When the value of A is increased by 10, the image lead edge is shifted toward the paper lead edge by 1 mm. (Default: 50)
4. Set the lead edge void amount as B = 50 (2.5 mm). (Default: 50)
∗ When the value of B is increased by 10, the void is increased by about 1 mm.
(For 25 or less, however, the void amount becomes zero.)
(Example)
 

☆ The SPF adjustment is made by adjusting the SPF image scan start position immediately after turning on the power.</td></tr>
<tr><td></td><td>10</td><td>Center offset adjustment
(Outline)
The center offset position of copy image on the copy paper and that of document scan are adjusted by adjusting the scan left margin of ASIC and the print left margin register set value.
(Operation/Procedure)
1. When this simulation is executed, the currently set value is displayed.
2. For a machine with a multi manual paper feed unit installed, when the copy mode select key is pressed, each set mode and display are changed.
For a machine with a single manual paper feed unit installed, when the copy mode select key is pressed, each set mode and display are changed.

☆ Machine with a multi manual paper feed unit
<table><tr><th>Adjustment mode</th><th>Display lamp</th></tr><tr><td>Print center offset (Main cassette paper feed)</td><td>AE, main cassette lamp</td></tr><tr><td>Print center offset (2nd cassette paper feed)</td><td>AE, 2nd cassette lamp</td></tr><tr><td>Print center offset (Manual paper feed)</td><td>AE, Manual paper feed lamp</td></tr><tr><td>OC/Document center offset</td><td>AE, TEXT lamp</td></tr><tr><td>SPF/Document center offset</td><td>AE, TEXT, PHOTO lamp</td></tr></table>
☆ Machine with a single manual paper feed unit
<table><tr><th>Adjustment mode</th><th>Display lamp</th></tr><tr><td>Print center offset (Main cassette paper feed)</td><td>AE, Main cassette lamp</td></tr><tr><td>Print center offset (Manual paper feed)</td><td>AE lamp (Blinking)</td></tr><tr><td>OC/Document center offset</td><td>AE, TEXT lamp</td></tr><tr><td>SPF/Document center offset</td><td>AE, TEXT, PHOTO lamp</td></tr></table></td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th></tr>
<tr><td>51</td><td>2</td><td>Resist amount adjustment
(Outline)
The contact pressure of paper onto the resist roller and the RSPF resist roller is adjusted.
(Operation/Procedure)
1. When this simulation is executed, the currently set value is displayed.
2. For a machine with a multi manual paper feed unit installed, when the copy mode select key is pressed, each set mode and display are changed.
For a machine with a single manual paper feed unit installed, when the copy mode select key is pressed, each set mode and display are changed.

☆ Machine with a multi manual paper feed unit
<table><tr><th>Adjustment mode</th><th>Display lamp</th></tr><tr><td>Main cassette paper feed</td><td>AE, main cassette lamp</td></tr><tr><td>2nd cassette paper feed</td><td>AE, 2nd cassette lamp</td></tr><tr><td>Manual paper feed</td><td>AE, manual paper feed lamp</td></tr><tr><td>RSPF document feed</td><td>AE, TEXT, PHOTO lamp</td></tr></table>
☆ Machine with a single manual paper feed unit
<table><tr><th>Adjustment mode</th><th>Display lamp</th></tr><tr><td>Main cassette paper feed</td><td>AE, main cassette lamp</td></tr><tr><td>Manual paper feed</td><td>AE lamp (Blinking)</td></tr><tr><td>RSPF document feed</td><td>AE, TEXT, PHOTO lamp</td></tr></table></td></tr>
<tr><td></td><td>6</td><td>SPF exposure correction amount adjustment
(Outline)
The APF exposure correction amount is adjusted by adjusting the change in Vref voltage for the OC mode.
(Operation/Procedure)
1. When this simulation is executed, the currently set value is displayed.
2. Enter the adjustment value with the 10-key and press the start key. The entered value is stored and a copy is made.
∗ When the adjustment value is changed by 1, the D/A output is changed by +1 digit (dark) for OC exposure. When it is changed by –1, the output is changed by –1 digit (light).
3. When the clear key is pressed, the entered value is stored and the simulation mode is terminated.</td></tr>
<tr><td>64</td><td>1</td><td>Self print by the engine only (1 by 2 mode)
(Outline)
Used to print in the 1 by 2 mode by ignoring the state of the optical system.
(Operation/Procedure)
1. When this simulation is executed, warming up is made and the ready lamp is lighted.
2. Select with the cassette select key and press the start key. Paper is fed from the selected cassette and printing is performed.
In the 1 by 2 mode, one line is printed and two lines are not printed.</td></tr>
</table>

[8] USER PROGRAM

The conditions of factory setting can be changed according to the use conditions.

1. Functions which can be set with the user program

Function	Contents	Factory setting
Auto clear.	● When a certain time is passed after completion of copying, this function returns to the initial state automatically. The time to reach the initial state can be set in the range of 30 sec to 120 sec by the unit of 30 sec. This function can be disabled.	60 sec
Pre-heat.	● When the copier is left unused with the power ON, the power consumption is automatically reduced to about 40Wh/H (∗ Note). The time to start this function can be set in the range of 30 sec to 90 sec by the unit of 30 sec. This function cannot be disabled. ● When this function is operated, the pre-heat lamp on the operation panel lights up. To return to the initial state, press any key on the operation panel. (When the COPY button is pressed, a copy is made after returning to the initial state.)	90 sec
Auto shut off passing time.	● When the copier is left unused with the power ON, the power consumption is automatically reduced to about 18Wh/H (∗ Note). The time to start this function can be set in the range of 2 min to 120 min. ● When this function is operated, all the lamps except for the pre-heat lamp on the operation panel turn off. To return to the initial state, press the COPY button.	5 min
Stream feeding.	After completion of copying with the automatic document feeder (SPF), when documents are set while the SPF indicator is blinking (for about 5 sec), the documents are automatically fed.	Set
Auto shut off setting	● Used to set or cancel this function.	Set

∗Note: The power consumption values in pre-heat and auto shut off may be varied depending on the use conditions.

2. Change the setting.

Example: Changing the time to operate the auto shut off function (Change from 60 sec to 90 sec)

1) Press the right and the left exposure adjustment keys simultaneously to start setting.

● Keep pressing the keys for five sec.

● Display lamps (▭ , ⁂ , ∴ blink simultaneously and "--" is displayed on the copy quantity display.

2) Select the function code with the 10-digit key (copy quantity set key).

● The number of the selected function blinks on the digit of 10 on the copy quantity display.

● For auto clear, select "1."

● For setting, refer to the following function codes.

Function name	Function code
Auto clear	1
Pre-heat	2
Auto shut off passing time	3
Stream feeding	4∗
Auto shut off setting	5

[Cancel] If a wrong code is entered, press the clear key and enter the correct function code.

3) Press the COPY button.

● The number blinking on the digit of 10 of the coyp quantity display is lighted.

● The number of the current set code blinks on the digit of 1.

4) Select the setting code with 1-digit key (copy quantity set key).

● To set to 90 sec, select "3."

● For setting, refer to the following set codes.

Function name	Set code	Function name	Set code	Function name	Set code	Function name	Set code	Function name	Set code
Auto clear	0 (Cancel)	Pre-heat	0 (30 sec)	Auto shut off	0 (2 min)	Stream feeding	0 (Cancel)	Auto shut off setting	0 (Cancel)
	1 (30 sec)		1 (60 sec)		∗1 (5 min)		∗1 (Setting)		∗1 (Setting)
	∗2 (60 sec)		∗2 (90 sec)		2 (15 min)				
	3 (90 sec)				3 (30 min)				
	4 (120 sec)				4 (60 min)				
					5 (120 min)				

∗ : Factory setting

● The number of the selected set code blinks on the digit of 1 of the copy quantity display.

[Cancel] When a wrong number of the function code is set, press the clear key and perform the procedure again from 2.

5) Press the COPY button.

● The number blinking on the digit of 1 of the copy quantity display is lighted up. This means the setting is completed.

[Note] To set another function, press the clear key after completion of this operation and perform the procedure from 2.

6) Press either one of exposure adjustment keys (◑ or ◑) to complete the setting.

● Display lamps (▭ , ⁂ , ∴) go off and the copy quantity display returns to the normal state.

3. AE level adjustment (OC mode)

[Input method]
When the PHOTO lamp lights up, press and hold the density select key for 5 sec, and the AUTO mode lamp will blink and the adjusted level will be displayed on the exposure level display.
[Adjustment]
For adjustment, press the density adjustment key too select the density in 5 steps.
[Terminating method]
Press the density select key, and the model display will turn from blinking to lighting to terminate the AE level adjustment.

4. AE level adjustment (SPF mode)

[Input method]
While the SPF mode lamp is lighting, when the PHOTO mode lamp lights up, press and hold the density select key for 5 sec, and the AUTO mode lamp will blink and the adjusted level will be displayed on the exposure level display.
[Adjustment]
For adjustment, press the density adjustment key to select the density in 5 steps.
[Terminating method]
When the density select key is pressed, the mode display will turn from blinking to lighting to terminate the AE level adjustment.

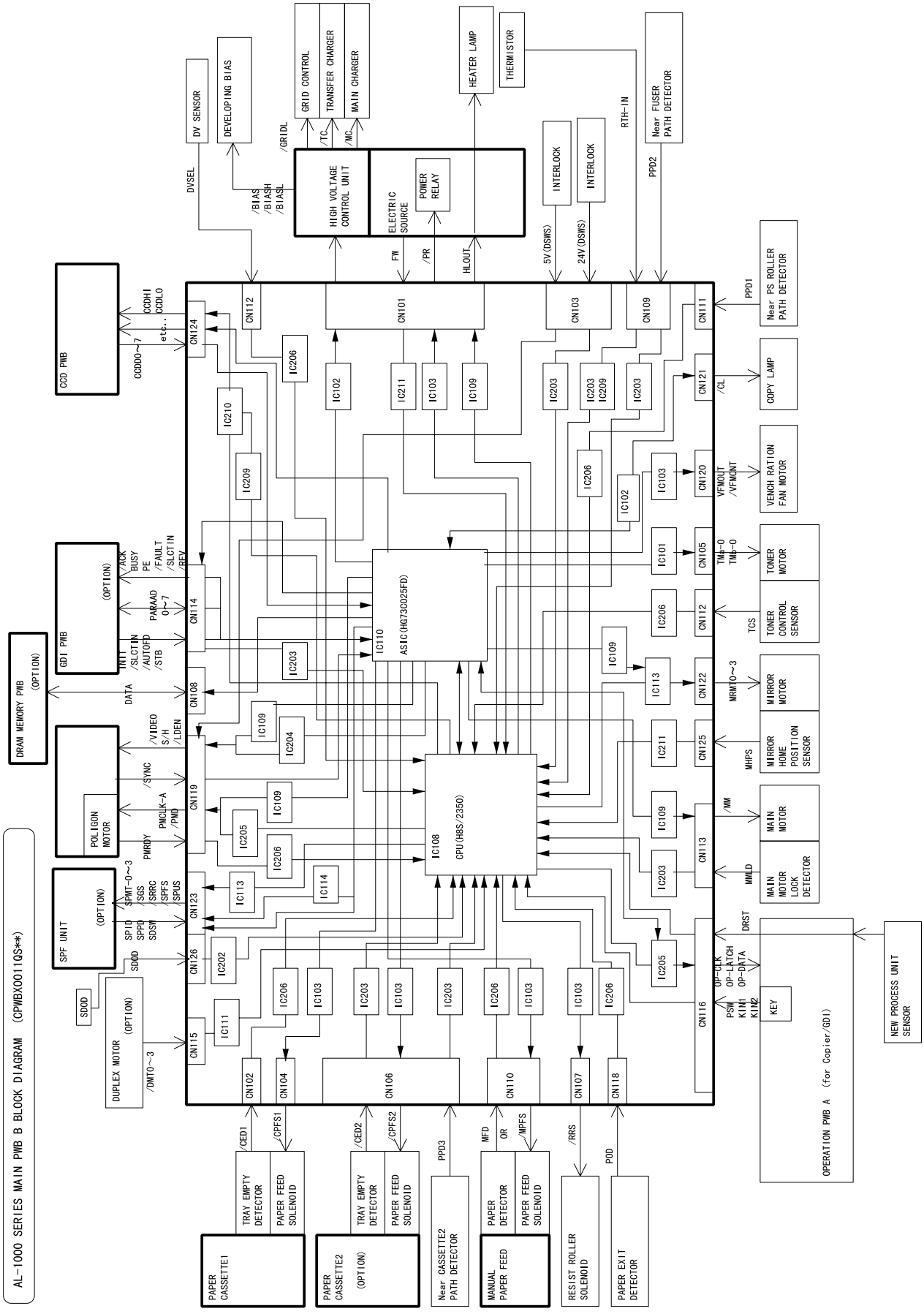
5. Toner save mode setup and cancel

[Input method]
When the TEST mode lamp lights up, press and hold the density select key for 5 sec, and the PHOTO mode lamp will turn from blinking to lighting and the adjusted level will be displayed on the exposure level display.
[Setup/Cancel]
Press the left key: Level “1” ON, toner save mode setup Press the right key: Level “5” ON, toner save mode cancel.
[Terminating method]
When the density select key is pressed, the mode display turns from blinking to lighting to terminate setup.

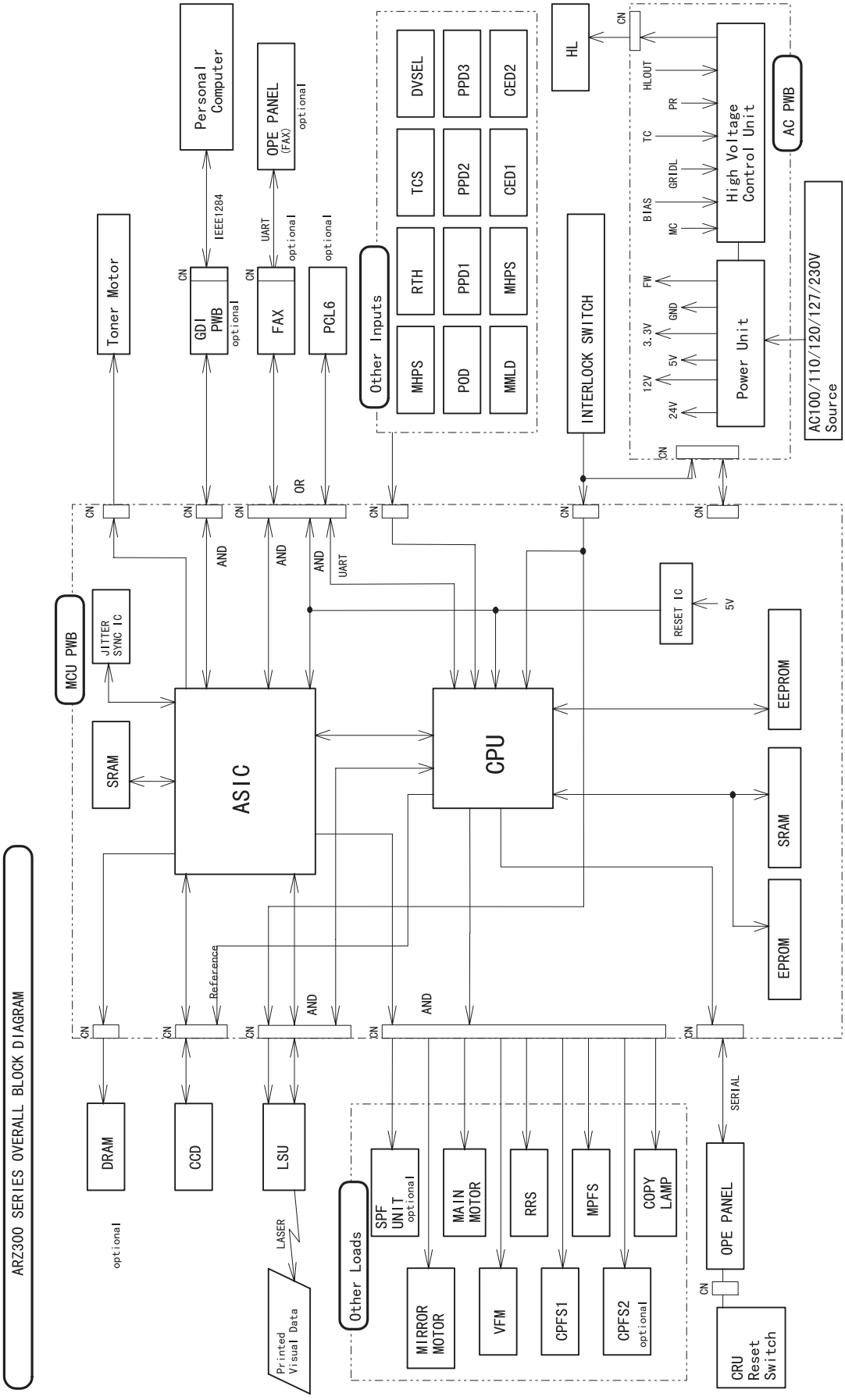
[9] ELECTRICAL SECTION

1. Block diagram

A. Overall block diagram



B. Main PWB block diagram



2. Circuit descriptions

A. Main PWB (MCU)

(1) CPU signal table

The additional signal is as follows:

Pin No.	Signal name	In/Out	During operation
109	SIN3	Input	Sensor input 3

The signals of function change are as follows:

Pin No.	Signal name	In/Out	During operation
119	MRMT3	Motor output	Mirror motor/SPF motor control signal
120	MRMT2	Motor output	Mirror motor/SPF motor control signal
121	MRMT1	Motor output	Mirror motor/SPF motor control signal
122	MRMT0	Motor output	Mirror motor/SPF motor control signal

(2) ASIC signal table

The additional signal is as follows:

Pin No.	Signal name	In/Out	Connection	Descriptions
201	SGS	Output	TR array IC	SPF gate solenoid control signal. “H”: Gate solenoid ON
202	SRRC	Output	TR array IC	SPF resist roller clutch control signal. “H”: Clutch ON
203	SPUS	Output	TR array IC	SPF pickup solenoid control signal. “H”: Solenoid ON
208	SPFS	Output	TR array IC	SPF paper feed solenoid control signal. “H”: Solenoid ON
209	SMSEL	Output	TR array IC	SPF/mirror motor relay switch signal. “L”: Mirror motor, “H”: SPF motor
227	CPFS2	Output	TR array IC	2nd cassette paper feed solenoid control signal. “H”: Solenoid ON

(3) Input signal table

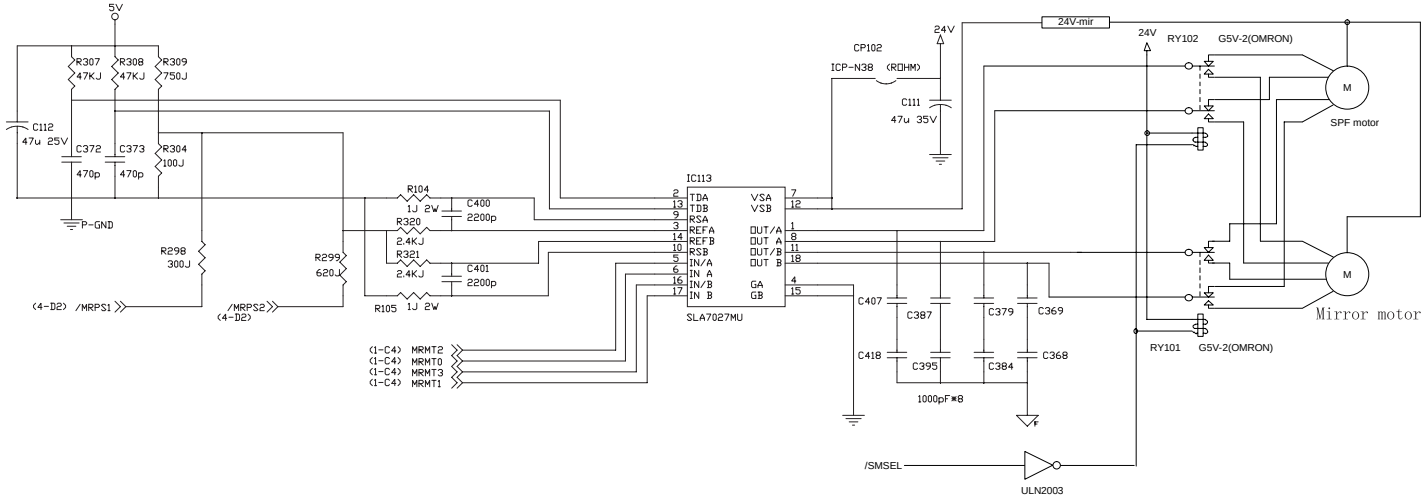
The additional signals are as follows:

	Signal name	Descriptions
SPF	SPID	SPF paper entry detection signal
	SPPD	SPF paper transport detection signal
	SDOD	SPF open/close detection signal
	SDSW	SPF cover open/close detection signal
2nd	CED2	2nd cassette section cassette presence detection
	PPD3	2nd cassette section paper transport detection

(4) Mirror motor circuit

The mirror motor is a stepping motor. Its driver is IC113 constant-current chopper control IC (SLA7024). For control, the CPU outputs a drive signal to IC113 to drive the mirror motor by 1-2 phase excitement.

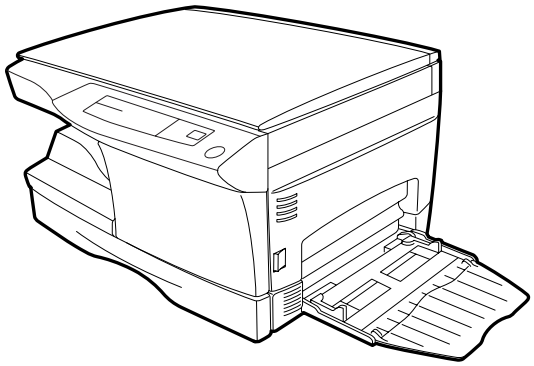
The SPF motor and the mirror motor are switched with relays RY1 and RY2. The switching signal is SMSEL-. When SMSEL- is LOW, a current flows through the SPF motor. When it is HIGH, a current flows through the mirror motor.



SHARP SERVICE MANUAL

CODE:00ZAL1000/A1E

DIGITAL COPIER



MODEL AL-1000 AL-1010

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Parts marked with "⚠" is important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safty and performance of the set.

SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

CAUTION

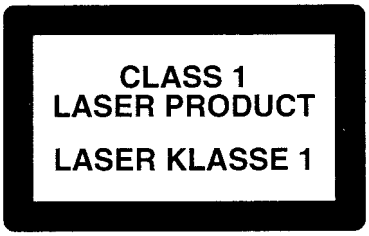
This product is a class 1 laser product that complies with 21CFR 1040.10 and 1040.11 of the CDRH standard and IEC825. This means that this machine does not produce hazardous laser radiation. The use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This laser radiation is not a danger to the skin, but when an exact focusing of the laser beam is achieved on the eye's retina, there is the danger of spot damage to the retina.

The following cautions must be observed to avoid exposure of the laser beam to your eyes at the time of servicing.

1) When a problem in the laser optical unit has occurred, the whole optical unit must be exchanged as a unit, not as individual parts.
2) Do not look into the machine with the main switch turned on after removing the developer unit, toner cartridge, and drum cartridge.
3) Do not look into the laser beam exposure slit of the laser optical unit with the connector connected when removing and installing the optical system.
4) The middle frame contains the safety interlock switch.

   Do not defeat the safety interlock by inserting wedges or other items into the switch slot.



LASER WAVE – LENGTH : 780 ~ 795
Pulse times : 0.481ms/6mm
Out put power : 0.20 ± 0.03mW

CAUTION

INVISIBLE LASER RADIATION,
WHEN OPEN AND INTERLOCKS DEFEATED.
AVOID EXPOSURE TO BEAM.

VORSICHT

UNSICHTBARE LASERSTRAHLUNG,
WENN ABDECKUNG GEÖFFNET UND
SICHERHEITSVERRIEGELUNG ÜBERBRÜCKT.
NICHT DEM STRAHL AUSSETZEN.

VARO !

AVATTAESSA JA SUOJALUKITUS
OHITETTAESSA OLET ALTTIINA
NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE ÄLÄ
KATSO SÄTEESEEN.

ADVARSEL

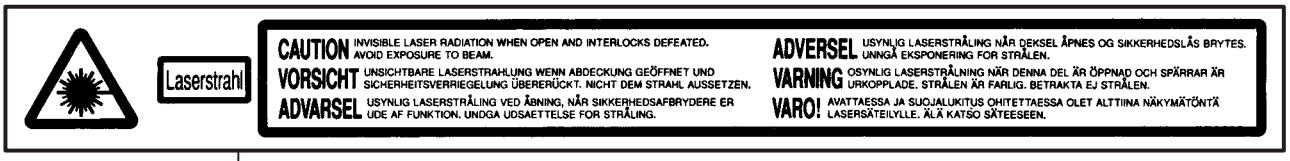
USYNLIG LASERSTRÅLNING VED ÅBNING, NÅR
SIKKERHEDSBRYDERE ER UDE AF
FUNKTION. UNDGÅ UDSAETTELSE FOR
STRÅLNING.

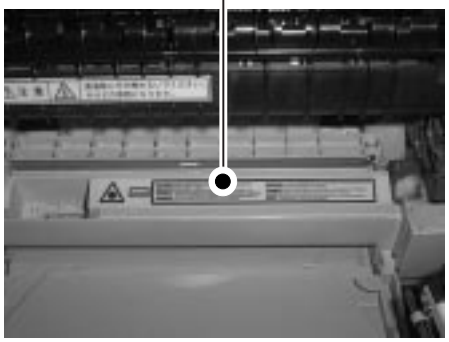
VARNING !

OSYNLIG LASERSTRÅLNING NÄR DENNA DEL
ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD.
BETRAKTA EJ STRÅLEN. – STRÅLEN ÄR
FARLIG.

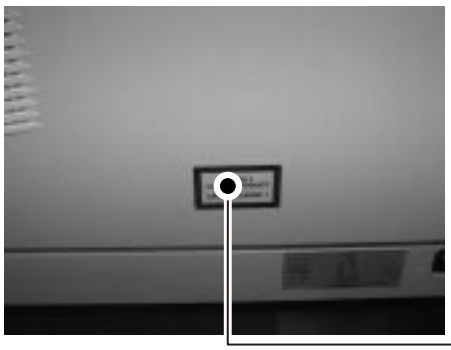
At the production line, the output power of the scanner unit is adjusted to 0.57 MILLI-WATT PLUS 20 PCTS and is maintained constant by the operation of the Automatic Power Control (APC). Even if the APC circuit fails in operation for some reason, the maximum output power will only be 15 MILLI-WATT 0.1 MICRO-SEC. Giving and accessible emission level of 42 MICRO-WATT which is still-less than the limit of CLASS-1 laser product.

Caution
This product contains a low power laser device. To ensure continued safety do not remove any cover or attempt to gain access to the inside of the product. Refer all servicing to qualified personnel.

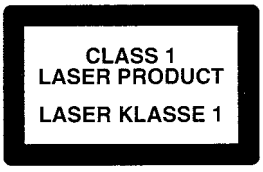

Laserstrahl
CAUTION INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
VORSICHT UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET UND SICHERHEITSVERRIEGELUNG ÜBERERÜCKT. NICHT DEM STRAHL AUSSETZEN.
ADVARSEL USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGA UDSAETTELSE FOR STRÅLING.
ADVERSEL USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.
VARNING OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRRAR ÄR URKOPPLADE. STRÅLEN ÄR FARLIG. BETRAKTA EJ STRÅLEN.
VARO! AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTÖNTÄ LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.



VAROITUS! LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.



VARNING - OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING, SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.



LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

The foregoing is applicable only to the 220V model, 230V model and 240V model.

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[1] GENERAL

1. General

This model is a digital personal copier produced with key words of “Comfort able copy, Clear copy, Easy copy” providing high copy performances and copy productivity.

2. Target User Copy Volume: Monthly Average

Copies: 300 ~ 600 (Max. 800)
Prints: 300 ~ 600 (Max. 800)

3. Main features

(1) High-speed laser copying

- Since warm-up time is zero, copying can be started immediately after the power switch is turned on.
- First-copy time is only 9.6 seconds (normal mode).
- Copying speed is 10 copies/min., which adapts to business use, allowing improvement of working efficiency.

(2) High-quality digital image

- High-quality image copying at 600 dpi can be performed.
- In addition to the automatic exposure mode, the manual exposure can be adjusted in five steps.
- The photo mode copying function allows clear copying of delicate halftone original images such as monochrome photos and color photos.

(3) Substantial copying functions

- Zoom copying from 50% to 200% in 1% increments can be performed.
- Continuous copying of maximum 99 sheets can also be performed.
- Toner save mode reduces toner consumption by approximately 10%.
- User programs allow setting/modification of functions for customer’s needs.

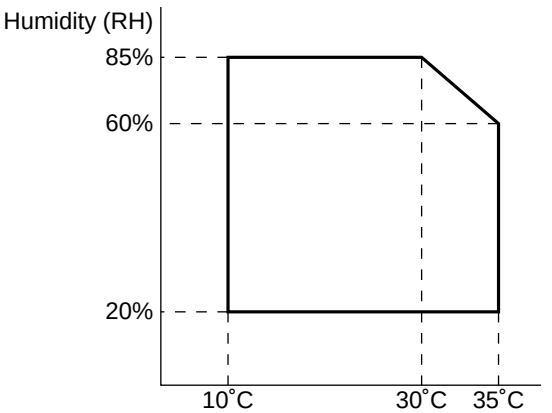
4. Environmental

The environmental conditions for assuring the copy quality and the machine operations are as follows:

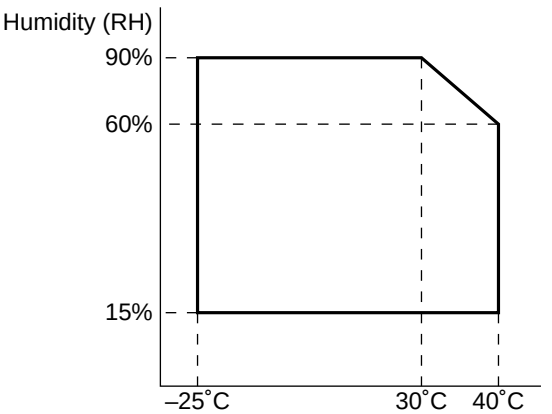
(1) Normal operating condition

Temperature:20˚C~25
Humidity:65 ± 5%RH

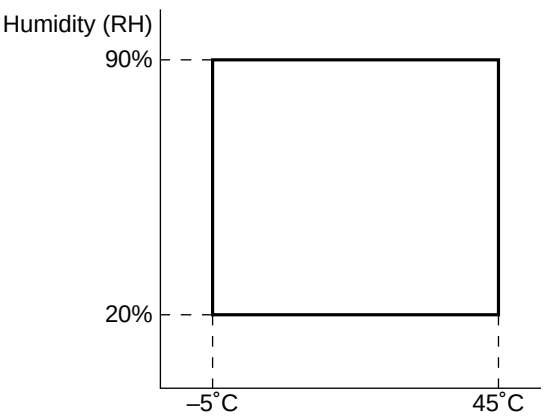
(2) Acceptable operating condition



(3) Optical condition



(4) Supply storage condition



[2] SPECIFICATIONS

1. Basic Specifications

item	
type	Desktop
Copy system	Dry, electrostatic
Segment (class)	Digital personal copier
External dimensions (W × D × H) (mm)	H293 × W518 × D445mm
Weight	Approx. 43.3lbs (19.6kg), TD and drum cartridges included

2. Operation specification

Section, item			Details	
Paper feed section	Paper feed system			1 tray (250 sheet) single bypass
				1tray (250 sheet) + multi bypass (50 sheet)
	AB system	Tray paper feed section	Paper size	A4, B5, A5 (Landscape)
			Paper weight	56 – 80g/m^2
			Paper feed capacity	250 sheets
			Kinds	Standard paper, specified paper, recycled paper
			Remark	User adjustment of paper guide available
		Multi bypass paper feed section	Paper size	A4, B5, A5, B6, A6 (Landscape)
			Paper weight	52 – 130g/m^2
			Paper feed capacity	50 sheets
			Kinds	Standard paper, specified paper, recycled paper, OHP, Label, Postal card
			Remark	User adjustment of paper guide available
		Single bypass paper feed section	Paper size	A4, B5, A5, B6, A6 (Landscape)
			Paper weight	52 – 130g/m^2
			Paper feed capacity	1 sheet
			Kinds	Standard paper, specified paper, recycled paper, OHP, Label, Postal card
			Remark	User adjustment of paper guide available
	Inch system	Tray paper feed section	Paper size	8-1/2″ × 14″, 8-1/2 × 11″, 8-1/2″ × 5-1/2″ (Landscape)
			Paper weight	15 – 21 lbs.
			Paper feed capacity	250 sheets
			Kinds	Standard paper, specified paper, recycled paper
			Remark	User adjustment of paper guide available
		Multi bypass paper feed section	Paper size	8-1/2″ × 14″, 8-1/2 × 11″, 8-1/2″ × 5-1/2″, 3-1/2″ × 5-1/2″ (Landscape)
			Paper weight	14 – 34.5 lbs.
			Paper feed capacity	50 sheets
			Kinds	Standard paper, specified paper, recycled paper, OHP, Label, Postal card
			Remark	User adjustment of paper guide available
		Single bypass paper feed section	Paper size	8-1/2″ × 14″, 8-1/2 × 11″, 8-1/2″ × 5-1/2″ (Landscape)
			Paper weight	14 – 34.5 lbs.
			Paper feed capacity	1 sheet
			Kinds	Standard paper, specified paper, recycled paper, OHP, Label, Postal card
			Remark	User adjustment of paper guide available

Section, item			Details	
Paper exit section		Exit way		Face down
		Capacity of output tray		100 sheets
Originals		Original set		Center Registration (left edge)
		Max. original size		B4 (10″ × 14″)
		Original kinds		sheet, book
		Original size detection		None
Optical section	Scanning section	Scanning system		CCD sensor scanning by lighting lamp scanner
		CCD sensor	Resolution	400 dpi
		Lighting lamp	Type	Xenon lamp
			Voltage	1.5kV
			Power consumption	11 ± 3W
	Writing section	Writing system		Writing to OPC drum by the semiconductor laser
		Laser unit	Resolution	600 dpi
	Gradation			256 gradations/8bit
Image forming		Photoconductor	type	OPC (30ϕ)
			Life	18k
		Charger	Charging system	Saw -tooth charging with a grid, / (–) scorotron discharge
			Transfer system	(+) DC corotron system
			Separation system	(–) DC corotron system
		Developing	Developing system	Dry, 2-component magnetic brush development system
		Cleaning	Cleaning system	Counter blade system (Counter to rotation)
Fusing section		Fusing system		Heat roller system
		Upper heat roller	type	Teflon roller
		Lower heat roller	type	Silicon rubber roller
		heater lamp	type	Halogen lamp
			Voltage	100V
			Power consumption	800W
Electrical section		Power source	Voltage	100V, 110V, 120/127V, 230V, 240V
			Frequency	Common use for 50 and 60Hz
		Power consumption	Max.	1000W
			Average (during copying)	260Wh/H *1)
			Average (stand-by)	70Wh/H *1)
			Pre-heat mode	40Wh/H *1)
			Auto power shut-off mode	18Wh/H *1)

*1) May fluctuate due to environmental conditions and the input voltage.

3. Copy performance

Section, item			Details	
Copy magnification		Fixed magnification ratios		3R + 2E (AB system : 50, 70, 81, 100, 141, 200%) (Inch system : 50, 64, 78, 129, 100, 200%)
		Zooming magnification ratios		50 ~ 200% (151 steps in 1% increments)
Manual steps (manual, photo)				5 steps
Copy speed		First copy time	Tray paper feed	9.6 sec. (Pre-heat mode:16 sec. or below / Auto power-shut-off mode : 23 sec. or below)
	AB system : A4 (Landscape)	Copy speed (CPM)	Manual paper feed	Single : 10.0 sec. / Multi : 8.0sec (Pre-heat mode:16 sec. or below / Auto power-shut-off mode : 23 sec. or below)
			Same size	10
			Enlargement	10
			Reduction	10
	B5 (Landscape)	Copy speed (CPM)	Same size	10
			Enlargement	10
			Reduction	10
	Inch system 8-1/2″ × 14″ (Landscape)	Copy speed (CPM)	Same size	10
			Enlargement	10
			Reduction	10
	8-1/2″ × 11″ (Landscape)	Copy speed (CPM)	Same size	10
			Enlargement	10
			Reduction	10
Max. continuous copy quantity				99
Void		Void area	leading edge	1 ~ 4mm
			Trailing edge	4mm or less
			Side edge void area	3mm or less/per side
		Image loss	leading edge	same size: 3.0mm or less / Enlarge (200%): 1.5mm or less / Reduction (50%): 6.0mm or less
			Trailing edge	same size: 3.0mm or less / Enlarge (200%): 1.5mm or less / Reduction (50%): 6.0mm or less
			Side edge void area	same size: 3.0mm or less / Enlarge (200%): 1.5mm or less / Reduction (50%): 6.0mm or less
Warm-up time				0 sec.
Power save mode reset time				0 sec.
Paper jam recovery time				0 sec.

4. Others

Section, item		Remark	
Additional function	Toner save mode	Can be set or canceled with user simulation.	Yes
	Pre-heat mode	Can be set or canceled with user simulation.	Yes
	Auto power shut off mode	Can be set or canceled with user simulation.	Yes

Accessories

Subsidiaries	SEC	SECL	SEEG	SUK	SCA	EX AB	EX Inch
Tray (Universal)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Drum cartridge	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TD cartridge	Yes	Yes	Yes	Yes	Yes	No*	No*
AC power cord	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tool for corona cleaning	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Operation manual	English1	English1 French	QB/QE: Multi language	English2	English2	Ex.) English French Arabic	Ex.) English Spanish

*Except some

[3] CONSUMABLE PARTS

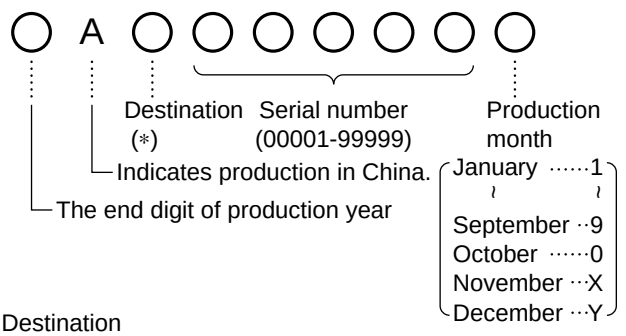
1. Supply system table

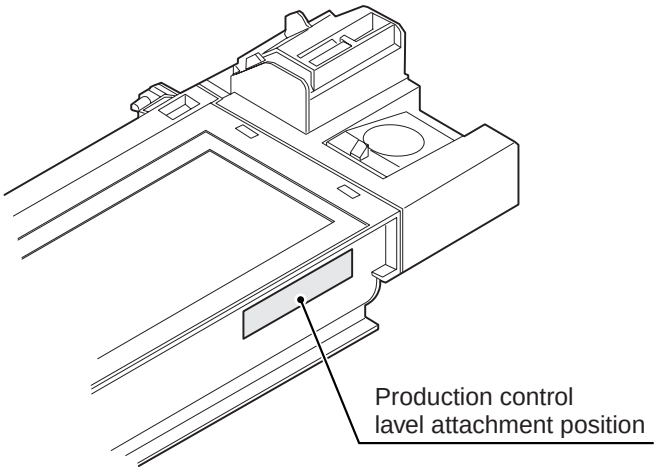
Common to all destinations

No.	Name	Content	Life	Product name	Package
1	Develop cartridge (Black) × 1	Toner/developer cartridge × 1 (Toner: Net weight 220g) (Developer: Net weight 190g)	6K (5% document)	AL-100TD	5
2	Drum cartirdge	Drum cartridge	18K	AL-100R	5

2. Production control number(lot No.) identification

〈**Developing cartridge**〉



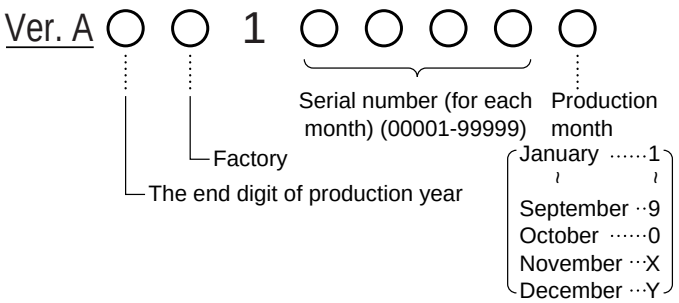


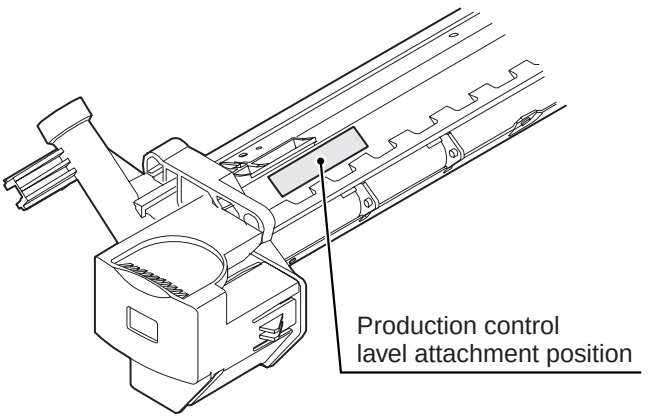
*:Destination

Division	No.
Japan option	1
Ex option	2
Japan, same pack	6
Ex, same pack	7

〈**Drum cartridge**〉

The label on the drum cartridge shows the date of production.

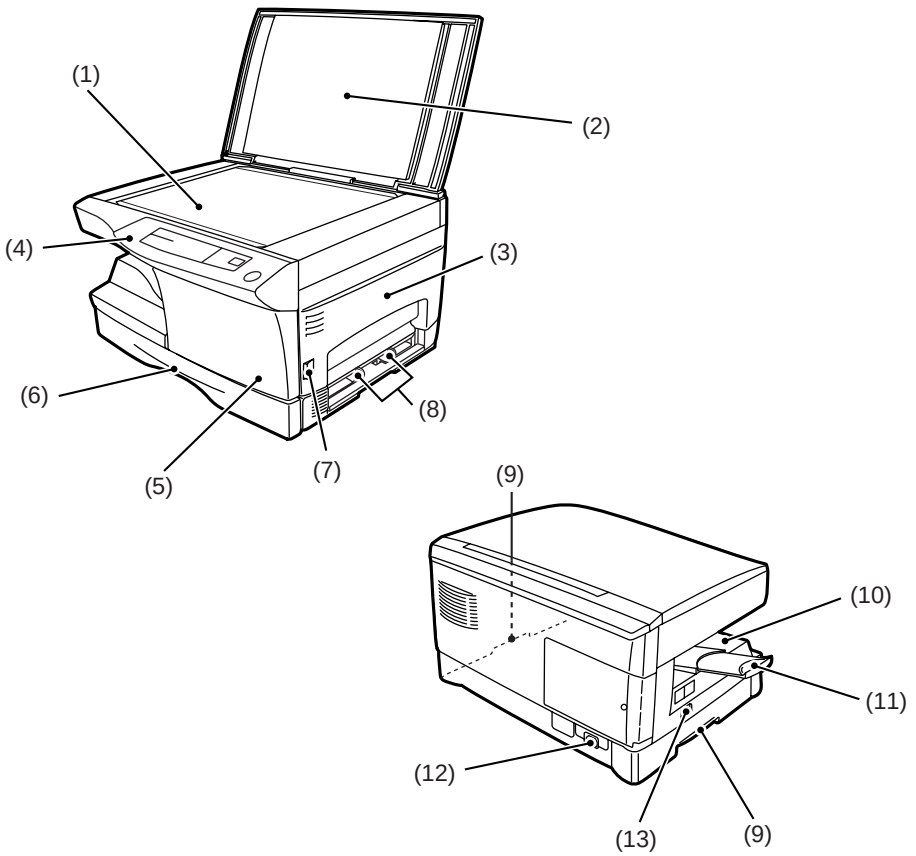




Division	No.
Ex production	1
Option	2
Same pack	3

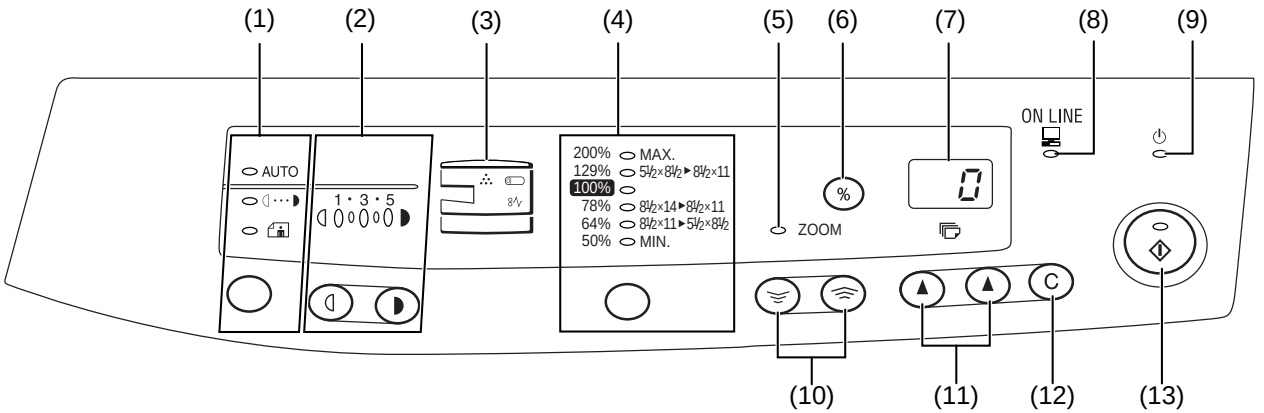
[4] EXTERNAL VIEWS AND INTERNAL STRUCTURES

1. Appearance



(1)	Original table	(2)	Original cover	(3)	Side cover
(4)	Operation panel	(5)	Front cover	(6)	Paper tray
(7)	Side cover open button	(8)	Paper guides	(9)	Handle
(10)	Paper output tray	(11)	Paper output tray extension	(12)	Power cord socket
(13)	Power switch				

2. Operational panel



(1)	Exposure mode selector key and indicators	(2)	Light and dark keys and exposure indicators	(3)	Alarm indicators*1
(4)	Copy ratio selector key and copy ratio indicators	(5)	Zoom indicator	(6)	Copy ratio display (%) key
(7)	Display	(8)	ON LINE indicator	(9)	Power save indicator
(10)	Zoom keys	(11)	Copy quantity keys	(12)	Clear key
(13)	Print key and ready indicator				

*1

Drum replacement required indicator
When the drum counter reaches 17,000 copies, the indicator lights up. After 1,000 additional copies are made, the indicator starts blinking and machine will hard-stop (after current job) until a new cartridge is installed.

Misfeed indicator

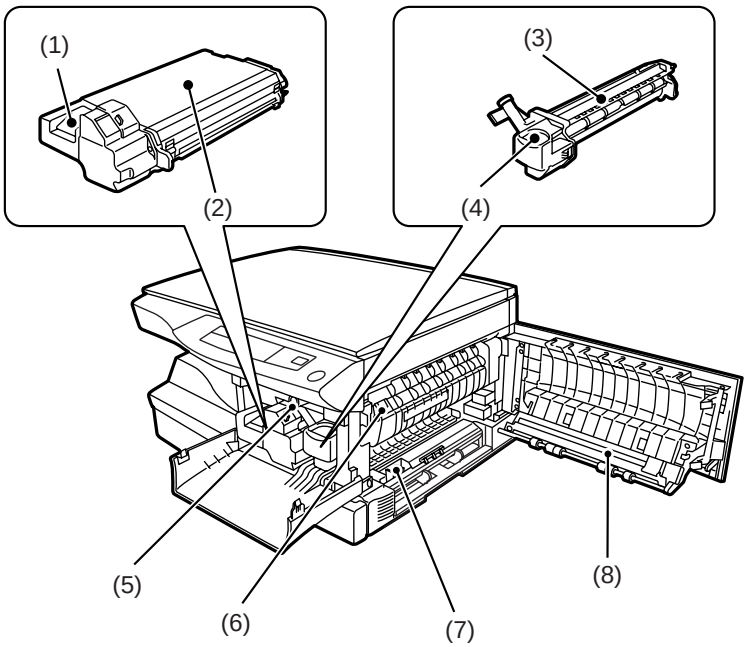
TD cartridge replacement required indicator
When toner density is lower than a specified level, the TONER DEVELOPER CARTRIDGE REPLACEMENT indicator lights up to warn the user.
If toner is not added after approximately 10 sheets are copied, the indicator starts blinking and machine starts to supply toner.(Toner Developer cartridg replacement indicator keeps lighting up)
If toner density is not back to specific level after two minutes, the READ indicator goes out and Toner Developer indicator starts blinking, and the copier stops.

*2 ON: Indicates that the machine is in the energy saving (pre-heat) mode.
Blink: Indicates that the machine is in the process of resetting from the energy saving mode or just after supplying the power.
OFF: Indicates that resetting from the energy saving mode is completed and that the fusing temperature is in ready state.
The combinations of the above display lamps are as follows: (● = ON, × = OFF)

Lamp	Immediately after power ON	Ready	Copying
Pre-heat lamp	Blink	×	×
Ready lamp	●	●	×
Other lamps	●	●	●

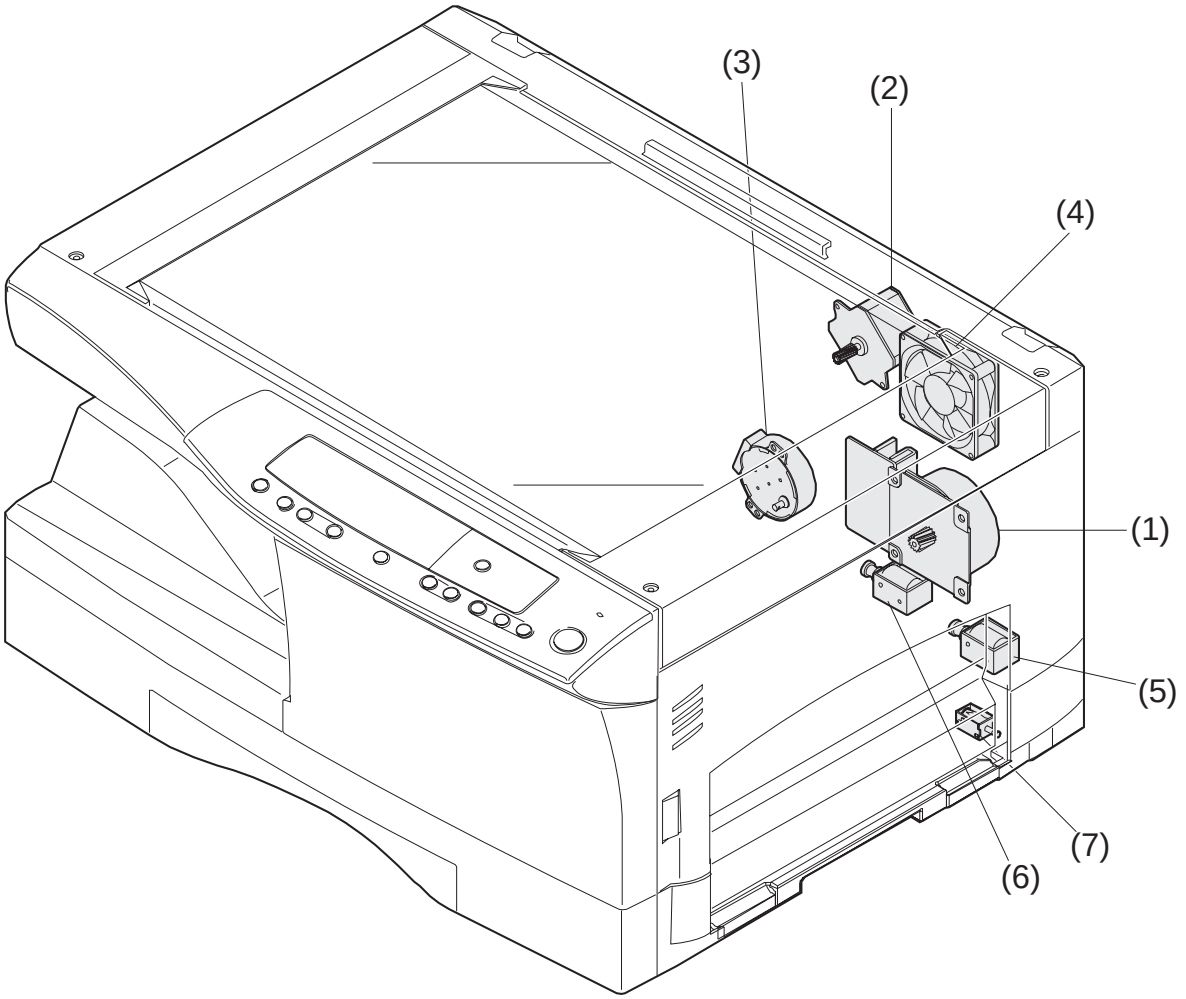
Lamp	Energy saving mode (Pre-heating)	Energy saving mode (Auto power shut off)	Resetting from energy saving mode	Copy is started during resetting from energy saving mode
Pre-heat lamp	●	●	Blink	Blink
Ready lamp	●	×	●	×
Other lamps	●	×	●	●

3. Internal



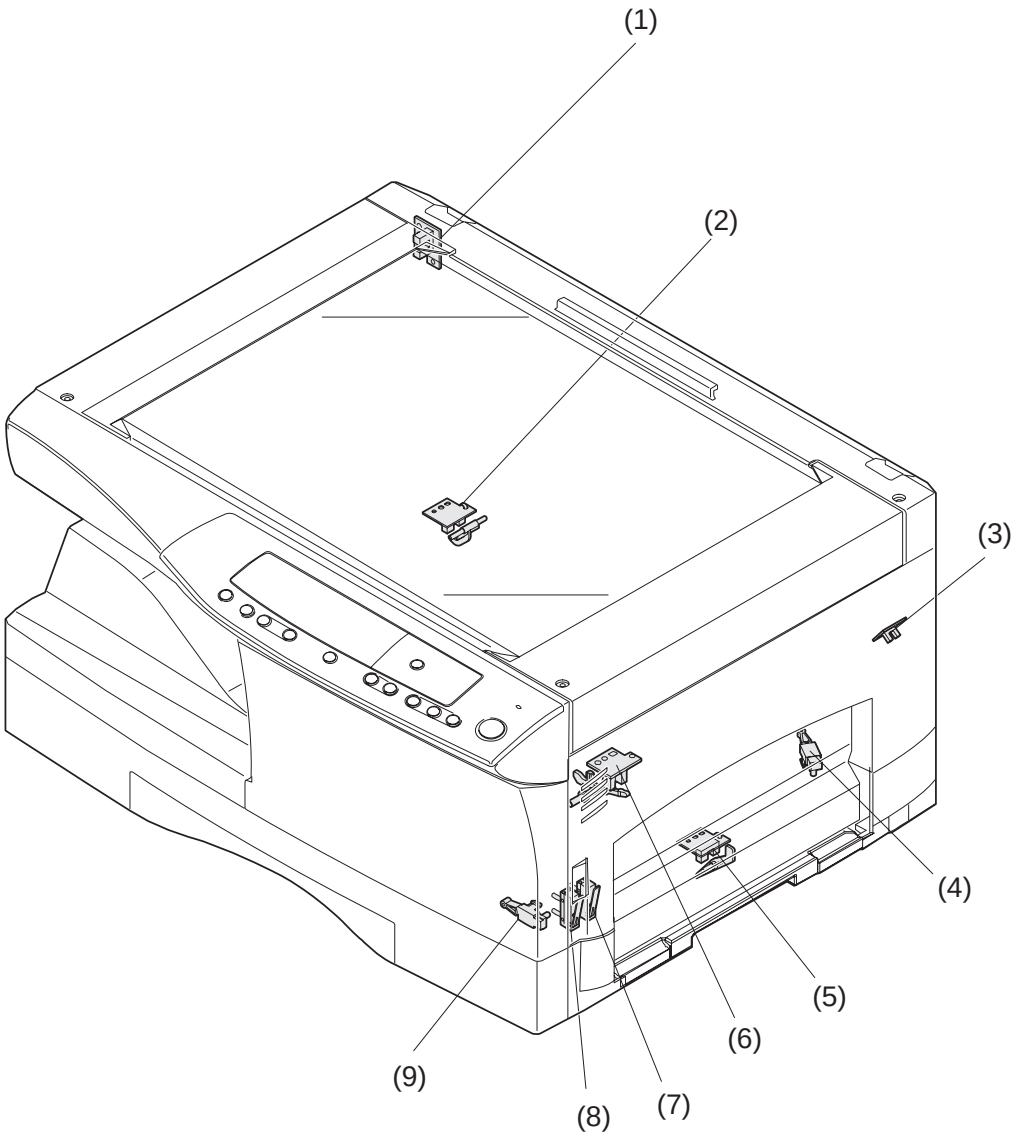
(1)	TC cartridge lock release button	(2)	TD cartridge	(3)	Drum cartridge
(4)	Drum cartridge handle	(5)	Paper feed roller	(6)	Fusing unit release lever
(7)	Charger cleaner	(8)	Transfer charger		

4. Motors and solenoids



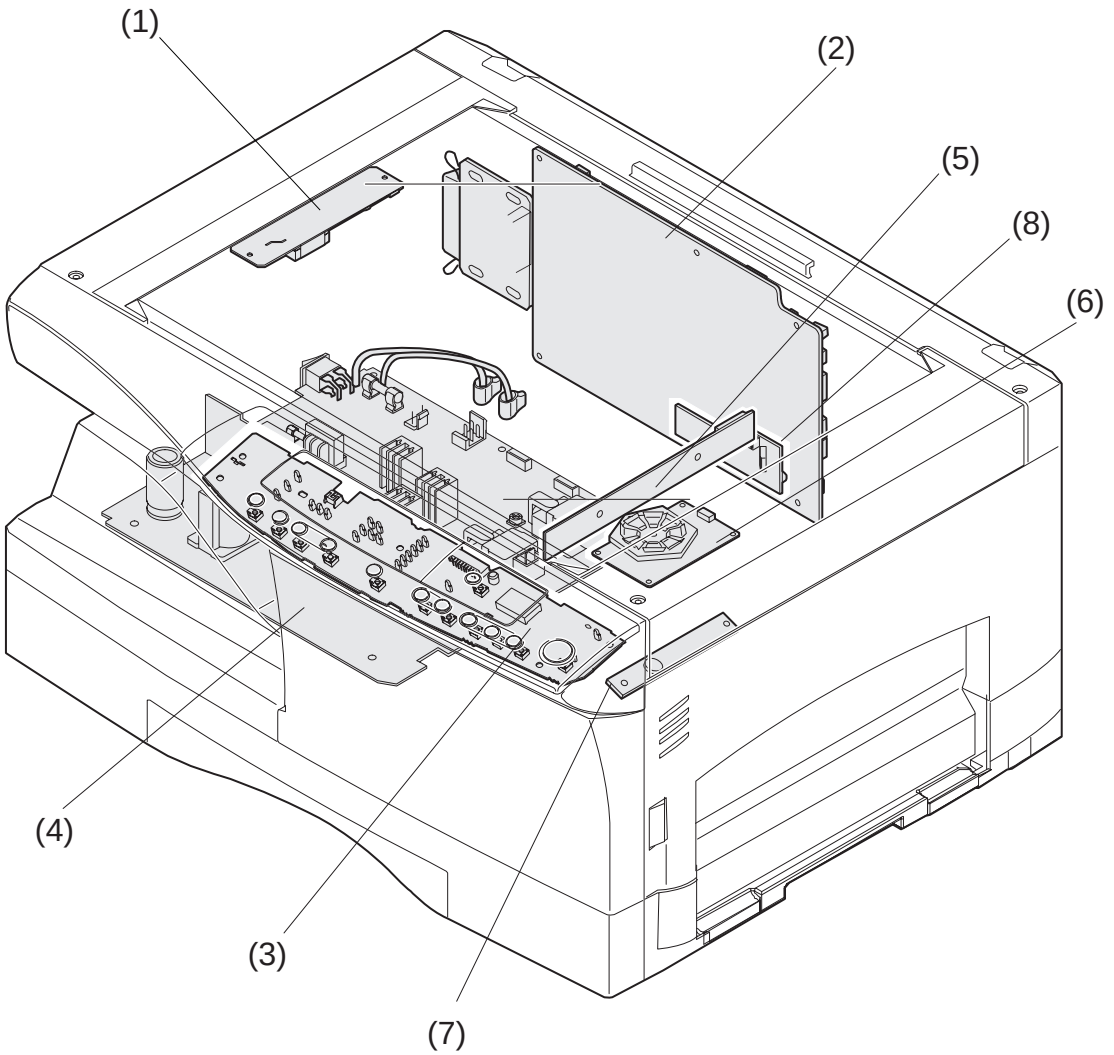
No.	Part name	Control signal	Function,operation
(1)	Main motor	MM	Drives the copier.
(2)	Mirror motor	MRMT	Drives the optical mirror base (scanner unit).
(3)	Toner motor	TM	Supplies toner.
(4)	Cooling fan motor	VFM	Cools the optical section.
(5)	Resist roller solenoid	RRS	Resist roller rotation control solenoid
(6)	Paper feed solenoid	CPFS1	Cassette Paper feed solenoid
(7)	Multi paper feed solenoid	MPFS	Multi manual pages feed solenoid

5. Sensors and switches



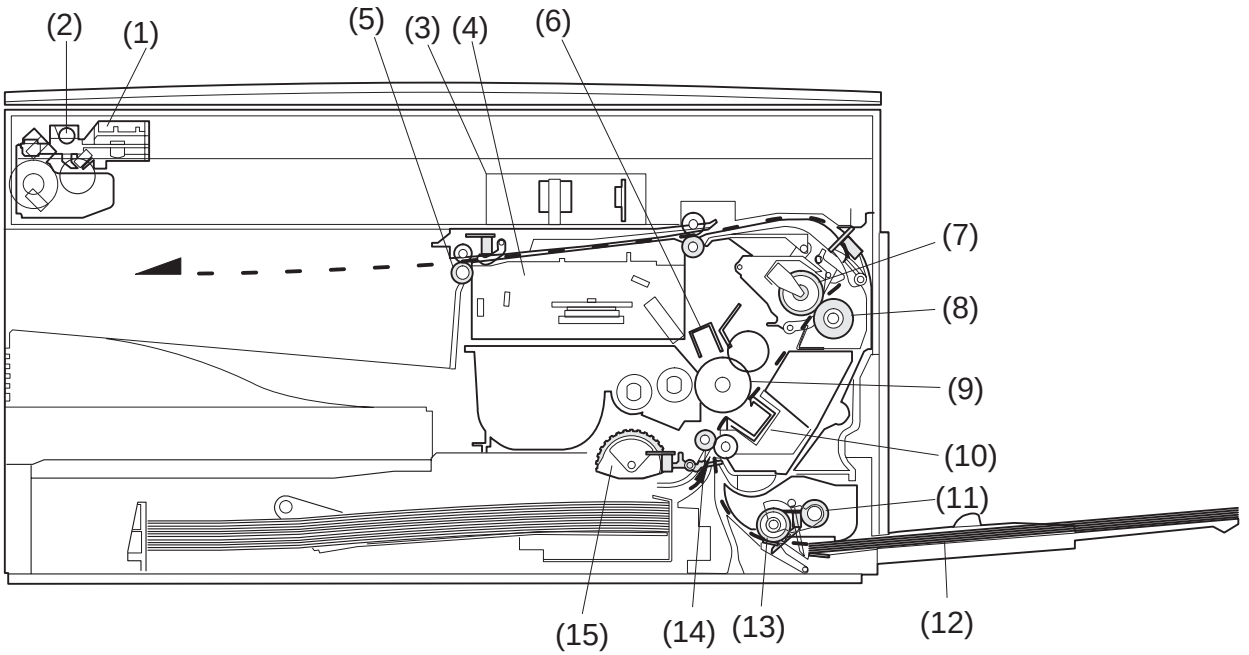
No.	Name	Signal	Type	Function	Output
(1)	Mirror home position sensor	MHPS	Transmission sensor	Mirror (scanner unit) home position detection	“H” at home position
(2)	POD sensor	POD	Transmissions sensor	Paper exitdetection	“H” at paper pass
(3)	PPD2 sensor	PPD2	Transmission sensor	Paper transport detection 2	“L” at paper pass
(4)	Cassette detection switch	CED1	Microswitch	Cassette installation detection	“H” at cassette insertion
(5)	Manual feed detection switch	MFD	Transmission sensor	Manual feed paper detection (single only)	“L” at paper detection
(6)	PPD1 sensor	PPD1	Transmission sensor	Paper transport detection 1	“L” at paper pass
(7)	Door switch	DSW	Micro switch	Door open/close detection (safety switch for 5V)	1 or 0V of 5V at door open
(8)	Door switch	DSW	Micro switch	Door open/close detection (safety switch for 24V)	1 or 0V of 24V at door open
(9)	Drum reset switch	DRST	Micro switch	New drum detection switch	Instantaneously “H” at insertion of new drum

6. PWB unit



No.	Name	Function
(1)	Exposure lamp invertor PWB	Exposure lamp (Xenon lamp) control
(2)	Main PWB (MCU)	Copier control
(3)	Operation PWB	Operation input/display
(4)	Power PWB	AC power input, DC voltage control, High voltage control
(5)	CCD sensor PWB	For image scanning
(6)	LSU motor PWB	For polygon motor drive
(7)	TCS PWB	For toner sensor control
(8)	LSU PWB	For laser control

7. Cross sectional view



No.	Part name	Function and operation
(1)	Scanner unit	Illuminates the original with the copy lamp and passes the reflected light to the lens unit (CCD).
(2)	Exposure lamp	Exposure lamp (Xenon lamp) Illuminates original
(3)	Lens unit	Scans the original image with the lens and the CCD.
(4)	LSU (Laser unit)	Converts the original image signal into laser beams and writes onto the drum.
(5)	Paper exit roller	Roller for paper exit
(6)	Main charger	Provides negative charges evenly to the drum surface.
(7)	Heat roller	Fuses toner on the paper. (Teflon roller)
(8)	Pressure roller	Fuses toner on the paper. (Silicon rubber roller)
(9)	Drum	Forms images.
(10)	Transfer unit	Transfers images onto the drum.
(11)	Pickup roller	Picks up the manual feed paper. (In multi feed only)
(12)	Manual paper feed tray	Tray for manual feed paper
(13)	Manual paper feed roller	Transport the paper from the manual paper feed port.
(14)	PS roller unit	Takes synchronization between the lead edge and the rear edge of the paper.
(15)	Paper feed roller	Picks up a sheet of paper from the cassette.

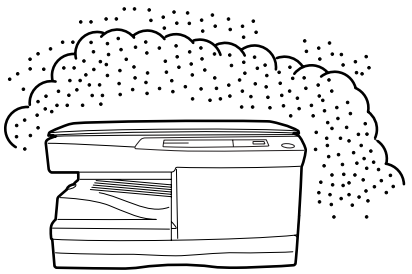
[5] UNPACKING AND INSTALLATION

1. A WORD ON COPIER INSTALLATION

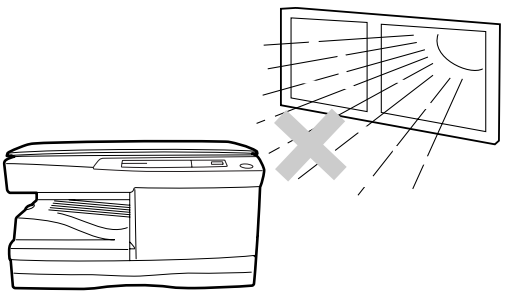
Improper installation may damage the copier. Please note the following during initial installation and whenever the copier is moved.

Do not install your copier in areas that are:

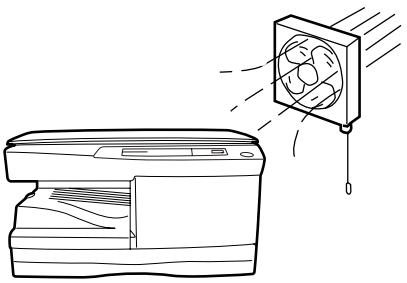
- damp, humid, or very dusty



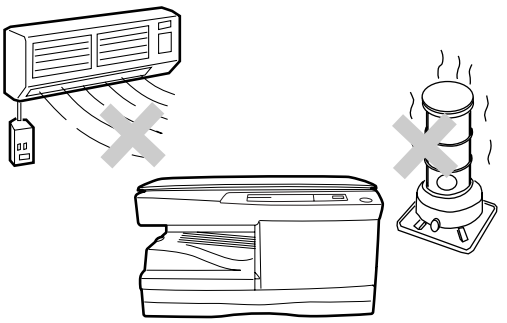
- exposed to direct sunlight



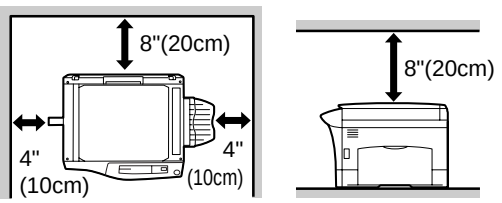
- poorly ventilated



- subject to extreme temperature or humidity changes, e.g., near an air conditioner or heater.

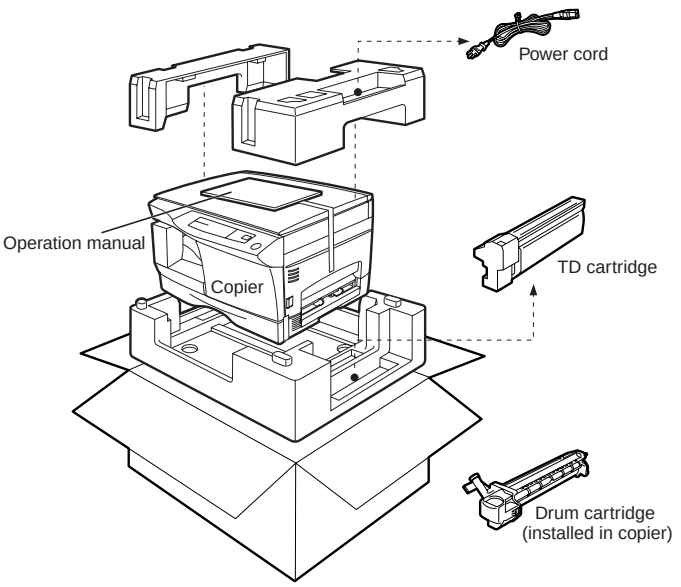


Be sure to allow the required space around the machine for servicing and proper ventilation.



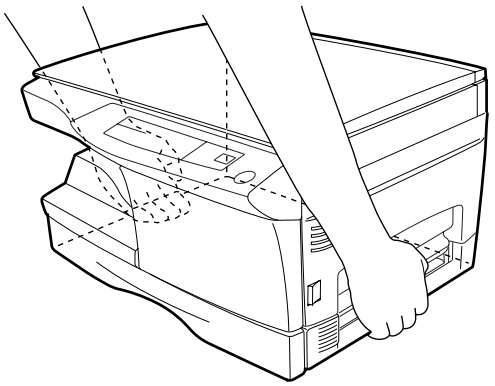
2. CHECKING PACKED COMPONENTS AND ACCESSORIES

Open the carton and check if the following components and accessories are included.



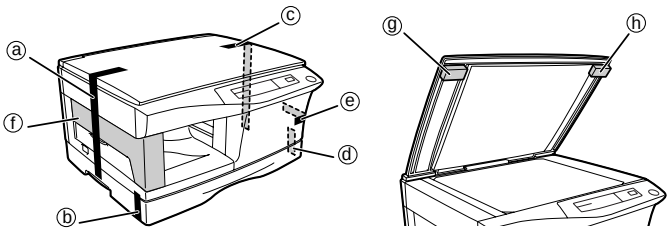
3. UNPACKING

Unpack the copier and carry it to the installation location by holding the handles on both sides of the copier.

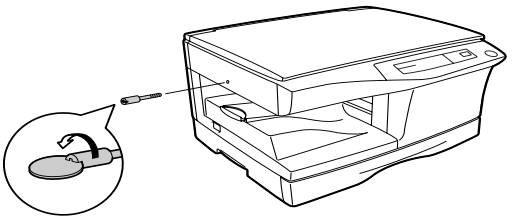


4. REMOVING PROTECTIVE PACKING MATERIALS

(1) Remove pieces of tape (a), (b), (c), (d), (e), (f), (g) and (h) and protective cover (i). Then open the original cover and remove protective materials (j) and (k).

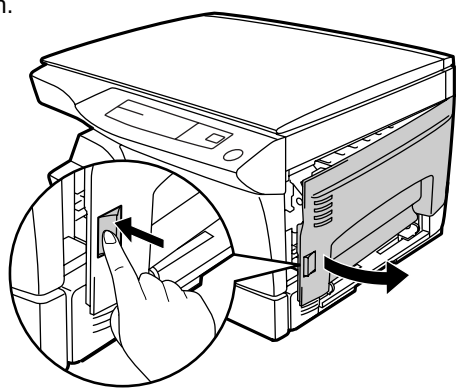


(2) Use a coin (or suitable object) to remove the screw. Store the screw in the paper tray because it will be used if the copier has to be moved.

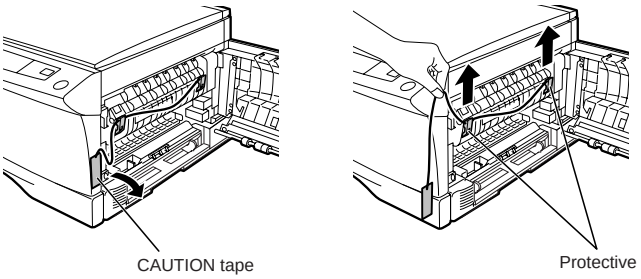


5. INSTALLING THE TD CARTRIDGE

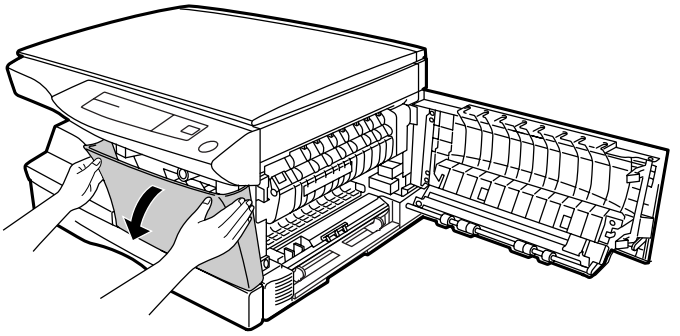
(1) Open the side cover while pressing the side cover open button.



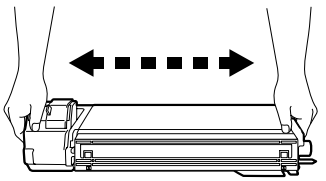
(2) Remove the CAUTION tape from the front cover and remove the two protective pins from the fusing unit by pulling the strings upward one at a time.



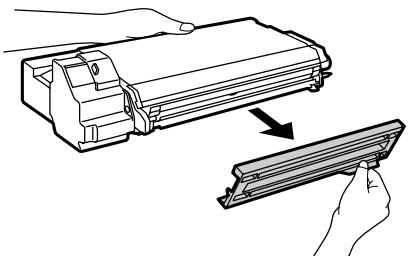
(3) Push gently on both sides of the front cover to open the cover.



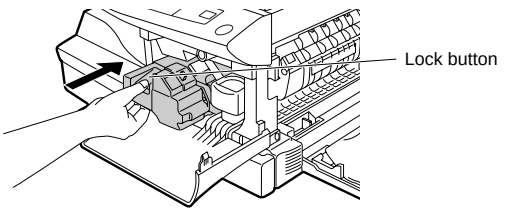
(4) Remove the TD cartridge from the bag. Remove the protective paper. Hold the cartridge on both sides and shake it horizontally four or five times.



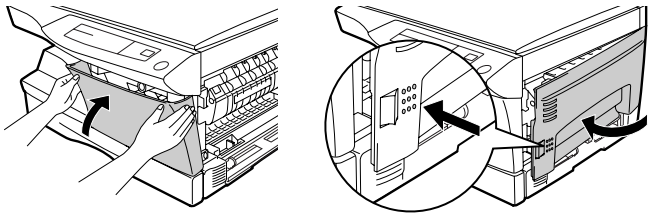
(5) Hold the tab of the protective cover and pull the tab to your side to remove the cover.



(6) Gently insert the TD cartridge until it locks in place, while pushing the lock button.

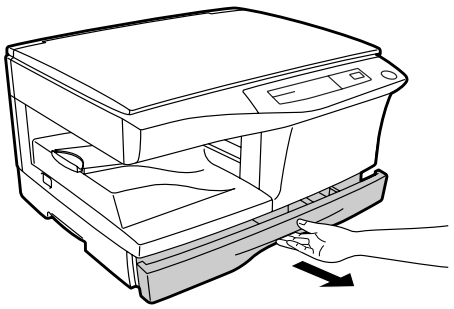


(7) Close the front cover and then the side cover by pressing the round projections near the side cover open button.

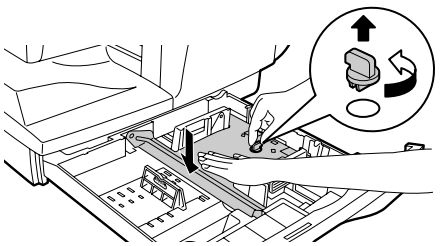


6. LOADING COPY PAPER (installing the paper tray)

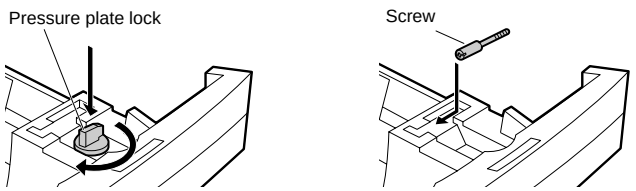
(1) Raise the handle of the paper tray and pull the paper tray out until it stops.



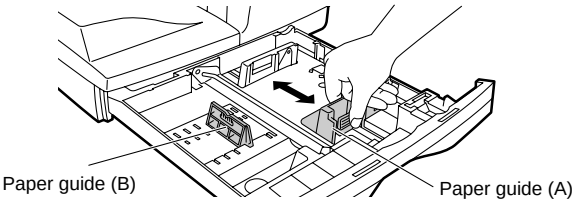
(2) Remove the pressure plate lock. Rotate the pressure plate lock in the direction of the arrow to remove it while pressing down the pressure plate of the paper tray.



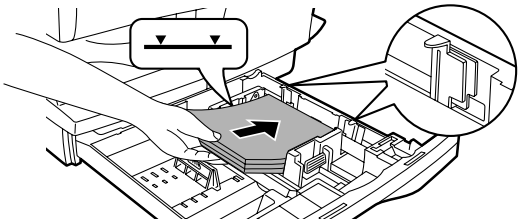
(3) Store the pressure plate lock which has been removed in step 2 and the screw which has been removed when unpacking (see page 5-2, step 2 of REMOVING PROTECTIVE PACKING MATERIALS) in the front of the paper tray. To store the pressure plate lock, rotate the lock to fix it on the relevant location.



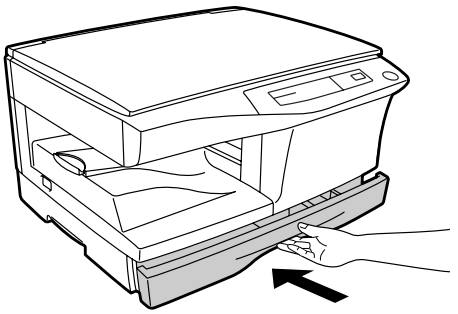
(4) Adjust the paper guides on the paper tray to the copy paper width and length.Squeeze the lever of paper guide (A) a and slide the guide to match with the width of the paper. Move paper guide (B) to the appropriate slot as marked on the tray.



(5) Fan the copy paper and insert it into the tray. Make sure the edges go under the corner hooks.

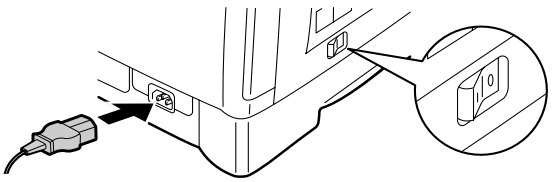


(6) Gently push the paper tray back into the copier.



7. PLUGGING IN THE COPIER

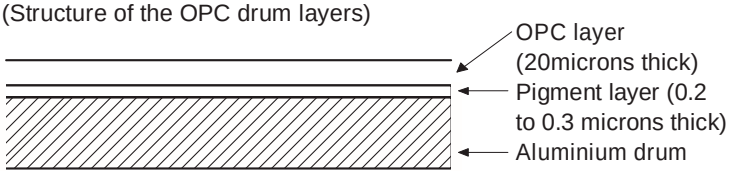
(1) Ensure that the power switch of the copier is in the OFF position. Insert the attached power cord into the power cord socket at the rear of the copier.



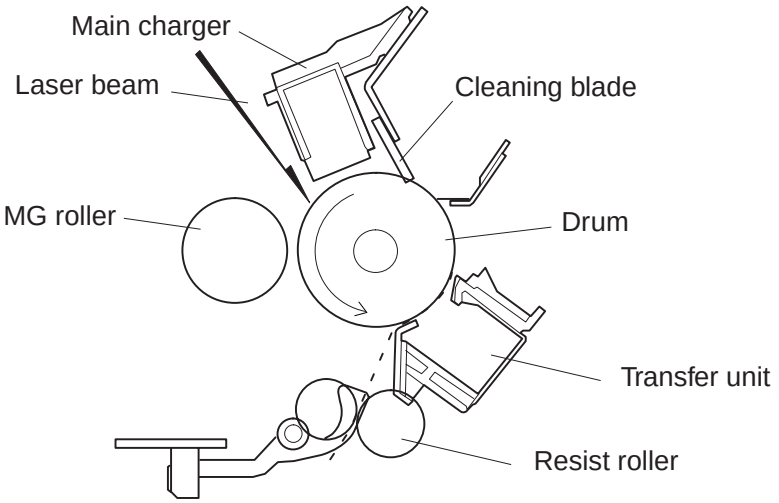
(2) Plug the other end of the power cord into the nearest outlet.

[6] Printing process

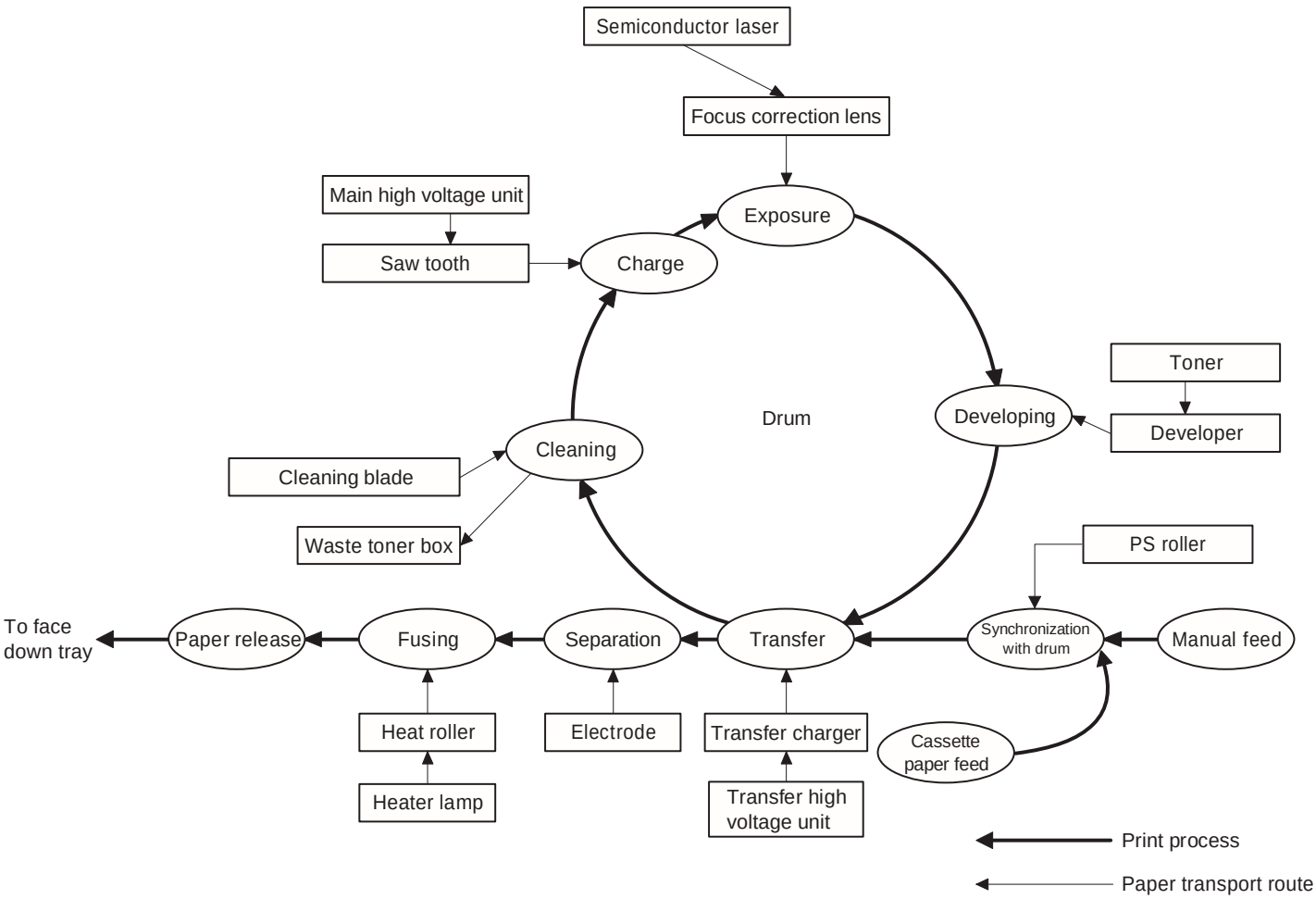
An OPC drum is used for the photoconductor.
(Structure of the OPC drum layers)



(1) Functional diagram



(Basic operation cycle)



(2) Outline of print process

This printer is a non-impact printer that uses a semiconductor laser and electrostatic print process. This printer uses an OPC (Organic Photo Conductor) for its photoconductive material. First, voltage from the main corona unit charges the drum surface and a latent image is formed on the drum surface using a laser beam. This latent image forms a visible image on the drum surface when toner is applied. The toner image is then transferred onto the print paper by the transfer corona and fused on the print paper in the fusing section with a combination of heat and pressure.

Step-1: Charge

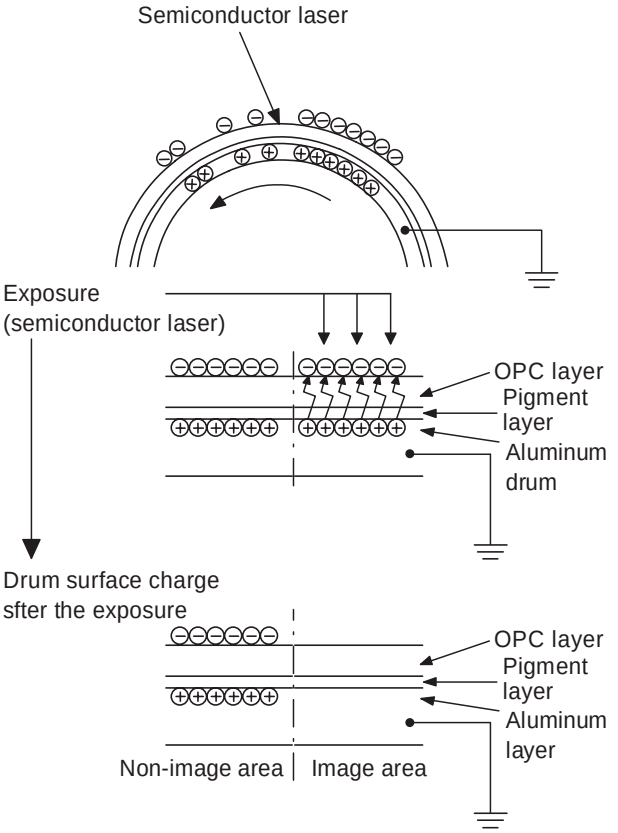
Step-2: Exposure
∗ Latent image is formed on the drum.

Step-3: Developing
Latent image formed on the drum is then changed into visible image with toner.

Step-4: Transfer
The visible image (toner image) on the drum is transfered onto the print paper.

Step-5: Cleaning
Residual toner on the drum surface is removed and collected by the cleaning blade.

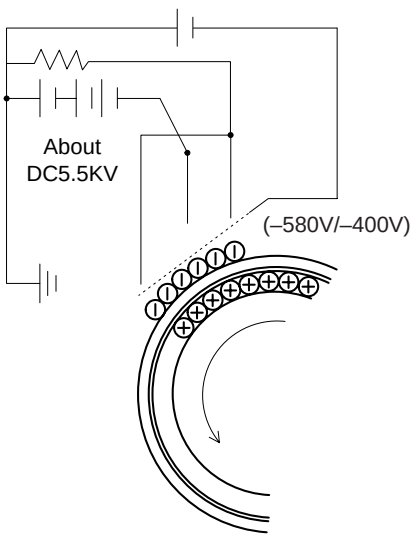
Step-6: Optical discharge
Residual charge on the drum surface is removed, by semiconductor laser beam.



(3) Actual print process

Step-1: DC charge

A uniform negative charge is applied over the OPC drum surface by the main charging unit. Stable potential is maintained by means of the Scorotron charger.
Positive charges are generated in the aluminum layer.



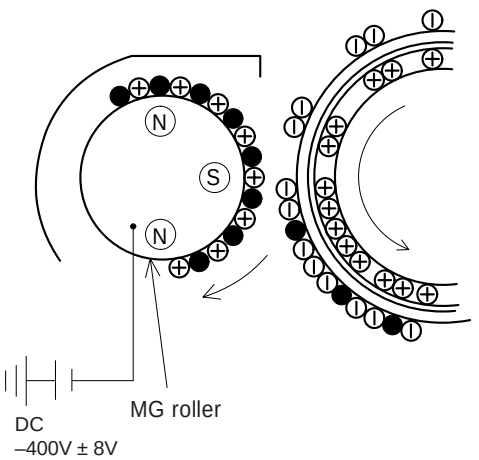
Step-2: Exposure (laser beam, lens)

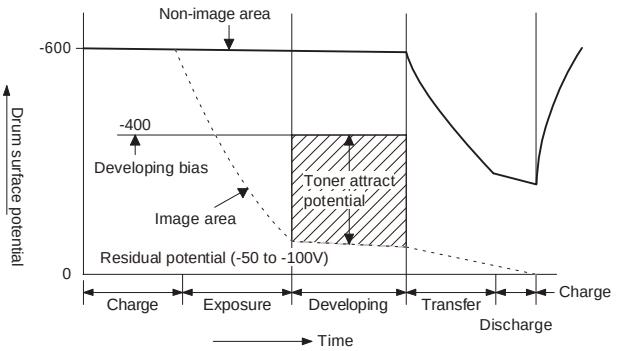
A Laser beam is generated from the semiconductor laser and controlled by the print pattern signal. The laser writes onto the OPC drum surface through the polygon mirrors and lens. The resistance of the OPC layer decreases for an area exposed by the laser beam (corresponding to the print pattern signal). The beam neutralizes the negative charge. An electrostatic latent image is formed on the drum surface.

Step-3: Developing (DC bias)

A bias potential is applied to the MG roller in the two component magnetic brush developing method, and the toner is charged negative through friction with the carrier.
Non-image area of the drum surface charged with negative potential repel the toner, whereas the laser exposed portions where no negative charges exist, attract the toner. As a result, a visible image appears on the drum surface.

⊕ : Carrier (Magnetized particle)
● : Toner (Charge negative by friction)
(N) (S) :Permanent magnet
(provided in three locations)

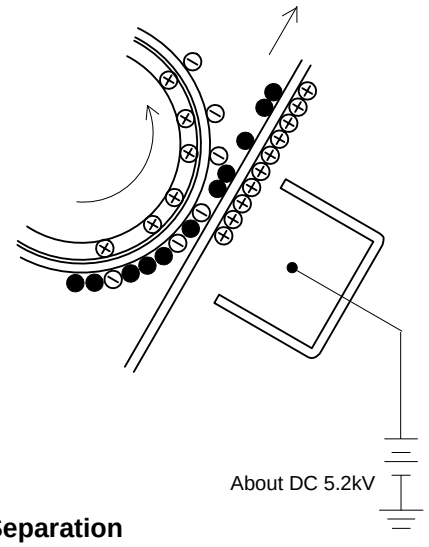




Toner is attracted over the shadowed area because of the developing bias.

Step-4: Transfer

The visible image on the drum surface is transferred onto the print paper by applying a positive charge from the transfer corona to the backside of the print paper.

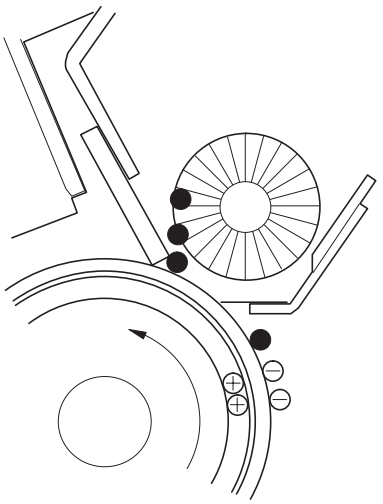


Step-5: Separation

Since the print paper is charged positively by the transfer corona, it is discharged by the separation corona. The separation corona is connected to ground.

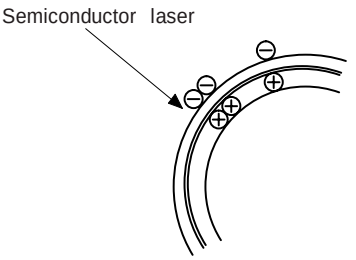
Step-6: Cleaning

Toner remaining on the drum is removed and collected by the cleaning blade. It is transported to the waste toner collecting section in the cleaning unit by the waste toner transport roller.



Step-7: Optical discharge (Semiconductor laser)

Before the drum rotation is stopped, the semiconductor laser is radiated onto the drum to reduce the electrical resistance in the OPC layer and elimate residual charge, providing a uniform state to the drum surface for the next page to be printed.
When the electrical resistance is reduced, positive charges on the aluminum layer are moved and neutralized with negative charges on the OPC layer.



Charge by the Scorotron charger

Function

The Scorotron charger functions to maintain the surface potential of the drum even at all times which. It is used to control the surface potential regardless of the charge characteristics of the photoconductor.

Basic function

A screen grid is placed between the saw tooth and the photoconductor. A stable voltage is added to the screen grid to maintain the corona current on the photoconductor.
As the photoconductor is charged by the saw tooth from the main corona unit, the surface potential increases. This increases the current flowing through the screen grid. When the photoconductor potential nears the grid potential, the current turns to flow to the grid so that the photoconductor potential can be maintained at a stable level.

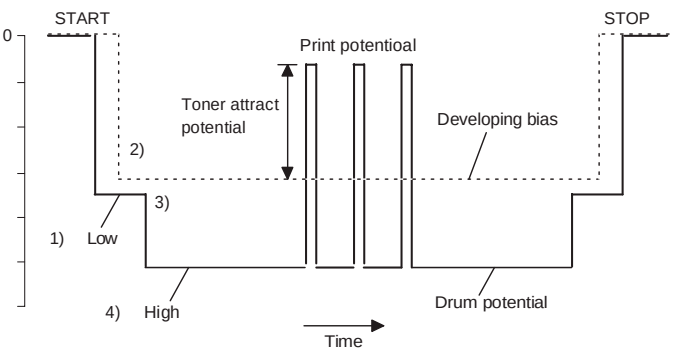
Process controlling

Function

The print pattern signal is converted into an invisible image by the semiconductor laser using negative to positive (reversible) developing method. Therefore, if the developing bias is added before the drum is charged, toner is attracted onto the drum. If the developing bias is not added when the drum is charged, the carrier is attracted to the drum because of the strong electrostatic force of the drum.
To avoid this, the process is controlled by adjusting the drum potential and the grid potential of the Scorotron charger.

Basic function

Voltage added to the screen grid can be selected, high and low. To make it easily understood, the figure below shows voltage transition at the developer unit.



Start

1) Because the grid potential is at a low level, the drum potential is at about –400V. (Carrier may not be attracted though the carrier is pulled towards the drum by the electrostatic force of –400V.
2) Developing bias (–400V) is applied when the photoconductor potential is switched from LOW to HIGH.
3) Once developing bias (–400V) is applied and the photo conductor potential rises to HIGH, toner will not be attracted to the drum.

Stop

The reverse sequence takes place.

Retaining developing bias at an abnormal occurrence

Function

The developing bias will be lost if the power supply was removed during print process. In this event, the drum potential slightly abates and the carrier makes deposits on the drum because of strong static power. To prevent this, the machine incorporates a function to retain the developing bias for a certain period and decrease the voltage gradually against possible power loss.

Basic function

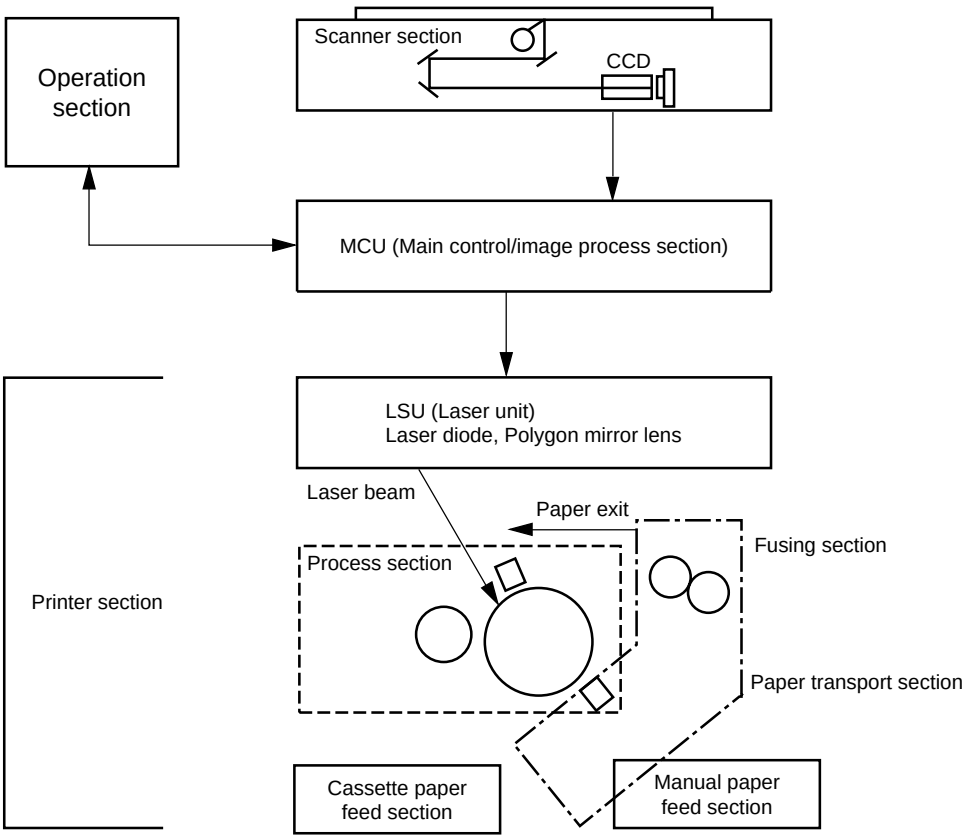
Normally, the developing bias voltage is retained for a certain time before the drum comes to a complete stop if the machine should stop before completing the normal print cycle. The developing bias can be added before resuming the operation after an abnormal interruption. Therfore, carrier will not make a deposit on the drum surface.

[7] OPERATIONAL DESCRIPTIONS

(1) Outline of operation

The outline of operation is described referring to the basic configuration.

(Basic configuration)



Outline of copy operation

Setting conditions

1) Set copy conditions such as the copy quantity and the copy density with the operation section, and press the COPY button. The information on copy conditions is sent to the MCU.

Image scanning

2) When the COPY button is pressed, the scanner section starts scanning of images. The light from the copy lamp is reflected by the document and passed through the lens to the CCD.

Photo signal/Electric signal conversion

3) The image is converted into electrical signals by the CCD circuit and passed to the MCU.

Image process

4) The document image signal sent from the CCD circuit is processed under the revised conditions and sent to the LSU (laser unit) as print data.

Electric signal/Photo signal (laser beam) conversion

5) The LSU emits laser beams according to the print data. (Electrical signals are converted into photo signals.)
6) The laser beams are radiated through the polygon mirror and various lenses to the OPC drum.

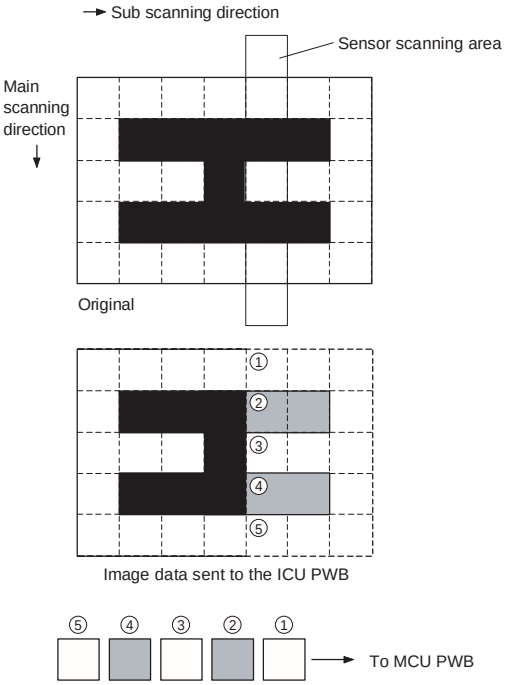
Printing

7) Electrostatic latent images are formed on the OPC drum according to the laser beams, and the latent images are developed to be visible images (toner images).
8) Meanwhile the paper is fed to the image transfer section in synchronization with the image lead edge.
9) After the transfer of toner images onto the paper, the toner images are fused to the paper by the fusing section. The copied paper is discharged onto the exit tray.

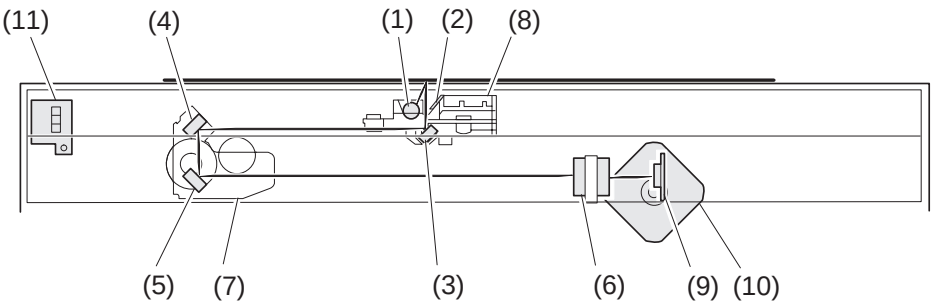
(2) Scanner section

1) How to scan documents

The scanner has sensors that are arranged in a line. These sensors scan a certain area of a document at a time and deliver outputs sequentially. When the line is finished, the next line is scanned, and this procedure is repeated. The figure below shows the case where the latter two sections of an image which are scanned are shown with solid lines and the former two sections which are being transmitted are shown with dotted lines.
The direction of this line is called “main scanning direction,” and the scanning direction “sub scanning direction.”
In the figure above, one line is divided into 4 sections. Actually, however, one line is divided into thousands of sections. For scanning, the light receiving element called CCD is used.
The basic resolution indicates the scanner capacity. The basic resolution is expressed in dpi (dot/inch) which shows the number of light emitting elements per inch on the document.
The basic resolution of this machine is 400dpi.
In the sub scanning direction, at the same time, the motor that drives the optical system is controlled to scan the image at the basic resolution.



2) Basic structure of scanner section



1	Copy lamp (Xenon lamp)	2	Reflector (light conversion plate)	3	No. 1 mirror
4	No. 2 mirror	5	No. 3 mirror	6	Lens
7	No. 2/3 mirror unit	8	Copy lamp unit	9	CCD
10	Mirror motor	11	MHPS (Mirror home position sensor)		

The scanner unit performs scanning in the digital optical system.
The light from the light source (Xenon lamp) is reflected by a document and passed through three mirrors and reduction lenses to the CCD element (image sensor) where images are formed. This system is known as the reduction image sensor system. Photo energy on the CCD element is converted into electrical signals (analog signals). (Photo-electric conversion). The output signals (analog signals) are converted into digital signals (A/D conversion) and passed to the MCU (main control/image process section). The resolution at that time is 400dpi.
The mirror unit in the scanner section is driven by the mirror motor.
The MHPS is provided to detect the home position of the copy lamp unit.

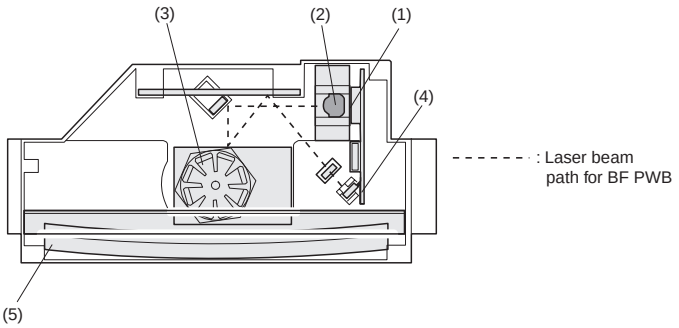
(3) Laser unit

The image data sent from the MCU (image process circuit) is sent to the LSU (laser unit), where it is converted into laser beams.

1) Basic structure

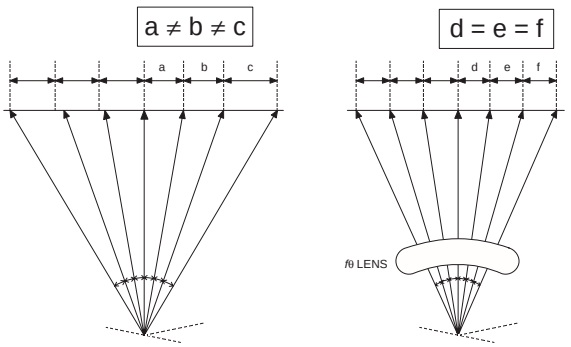
The LSU unit is the writing section of the digital optical system. The semiconductor laser is used as the light source, and images are formed on the OPC drum by the polygon mirror and fθ lens, etc.

The laser beams are passed through the collimator lens, the cylindrical lens, the polygon mirror, the fθ lens, and the mirror to form images on the OPC drum in the main scanning direction. The laser emitting PWB is provided with the APC (auto power control) in order to eliminate fluctuations in the laser power. The BF PWB works for measurement of the laser writing start point.

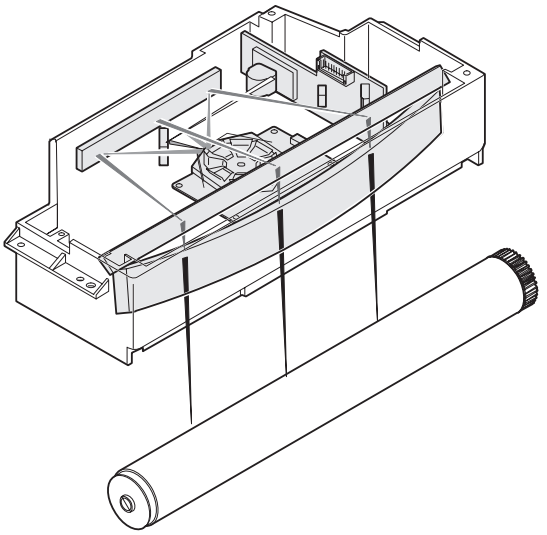


No.	Component	Function
(1)	Semiconductor laser	Generates laser beams.
(2)	Collimator lens	Converges laser beams in parallel.
(3)	Polygon mirror, polygon motor	Reflects laser beams at a constant rpm.
(4)	BD (Mirror, lens, PWB)	Detects start timing of laser scanning.
(5)	fθ lens	Converges laser beams at a spot on the drum.
		Makes the laser scanning speeds at both ends of the drum same as each other. (Refer to the figure below.)

Makes the laser scanning speeds at both ends of the drum same as each other.



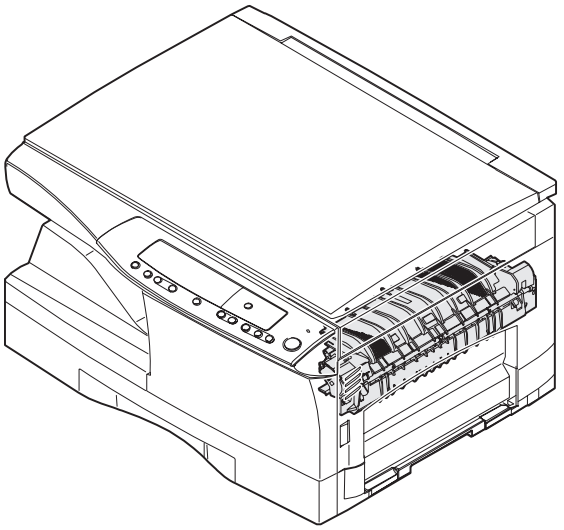
2) Laser beam path



3) Composition

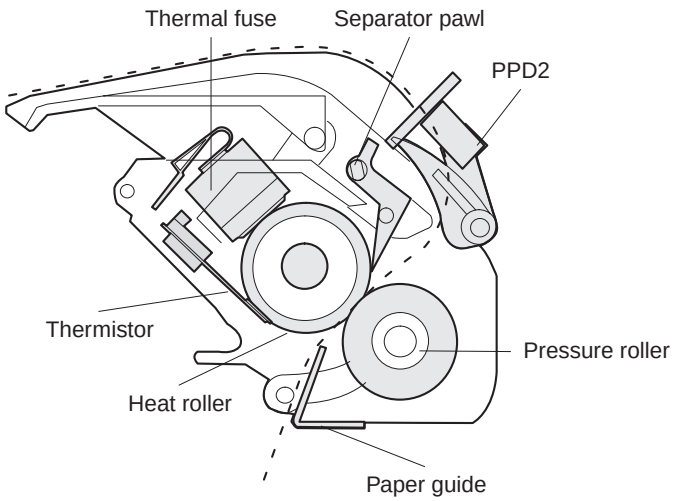
Effective scanning width:	216mm (max.)
Resolution:	600dpi
Beam diameter:	75um in the main scanning direction, 80um in the sub scanning direction
Image surface power:	0.20 ±0.03mW (Laser wavelength 780 – 795nm)
Polygon motor section:	Brushless motor 20.787rpm No. of mirror surfaces: 6 surfaces

Fuser section

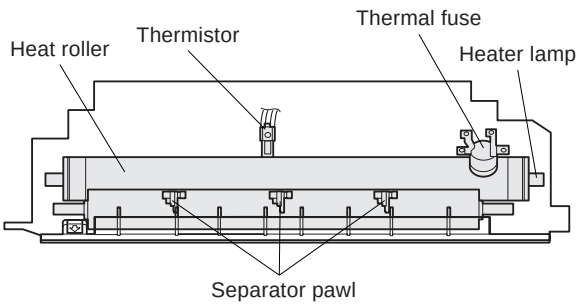


1. General description

General block diagram (cross section)



Top view



A. Heat roller

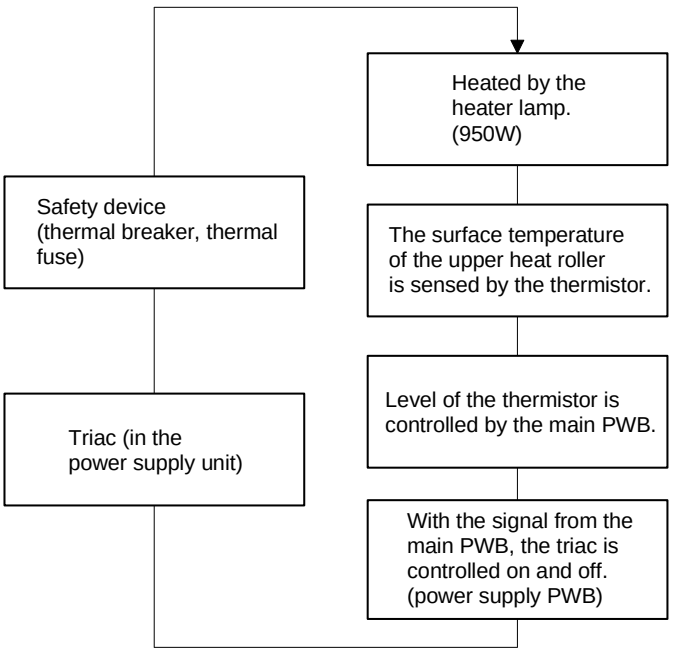
A pressure roller is used for the heat roller and a silicone rubber roller is used for the lower heat roller for better toner fusing performance and paper separation.

B. Separator pawl

Three separator pawls are used on the upper heat roller. The separator pawls are teflon coated to reduce friction with the roller and prevent a smear on the paper caused by the separator pawl.

C. Thermal control

1. The heater lamp, thermistor, main PWB, DC power supply PWB, and triac within the power supply unit are used to control the temperature in the fuser unit.
   To prevent against abnormally high temperature in the fuser unit, a thermal breaker and thermal fuse are used for safety purposes.


Heated by the heater lamp. (950W)
Safety device (thermal breaker, thermal fuse)
The surface temperature of the upper heat roller is sensed by the thermistor.
Level of the thermistor is controlled by the main PWB.
Triac (in the power supply unit)
With the signal from the main PWB, the triac is controlled on and off. (power supply PWB)

2. The surface temperature of the upper heat roller is set to 165˚C ~ 190˚C. The surface temperature during the power save mode is set to 100˚C.

3. The self-check function comes active when one of the following malfunctions occurs, and an "H" is displayed on the multicopy window.
   a. When the heat roller surface temperature rises above 240˚C.
   b. When the heat roller surface temperature drops below 100˚C during the copy cycle.
   c. Open thermistor
   d. Open thermal fuse
   e. When the heat roller temperature does not reach 190˚C within 27 second after supplying the power.

D. Fusing resistor

Fusing resistor

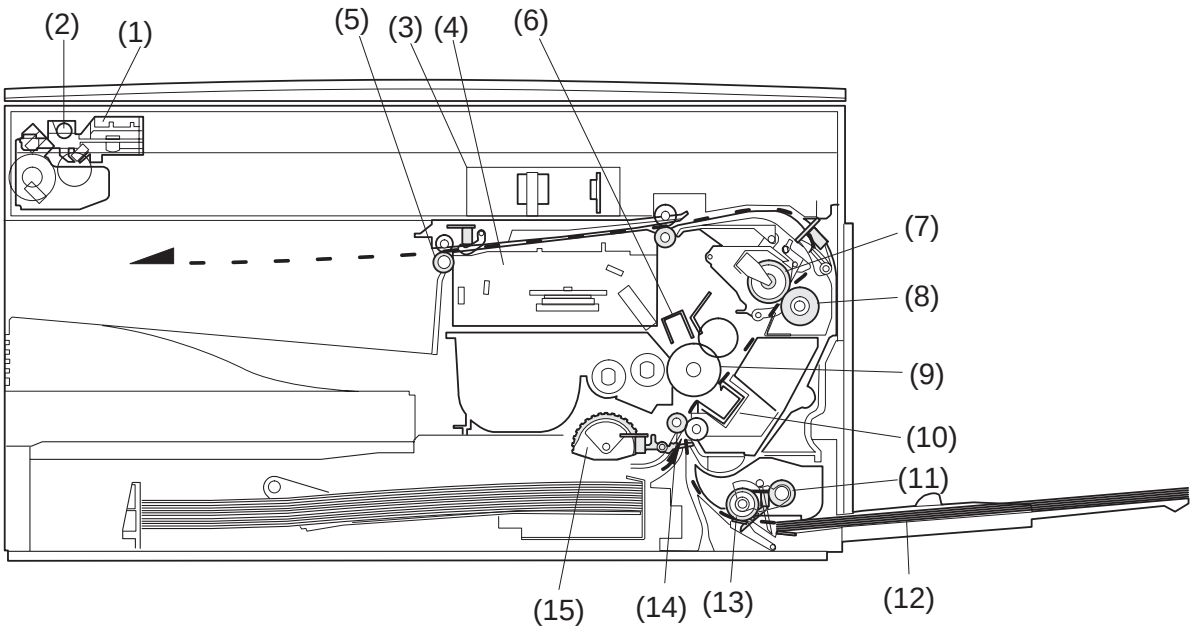
This model is provided with a fusing resistor in the fusing section to improve transfer efficiency.
General descriptions are made in the following.

General descriptions

Since the upper heat roller is conductive when copy paper is highly moistured and the distance between the transfer unit and the fusing unit is short, the transfer current leaks through the copy paper, the upper heat roller and the discharging brush.

Paper feed section and paper transport section

1. Paper transport path and general operations

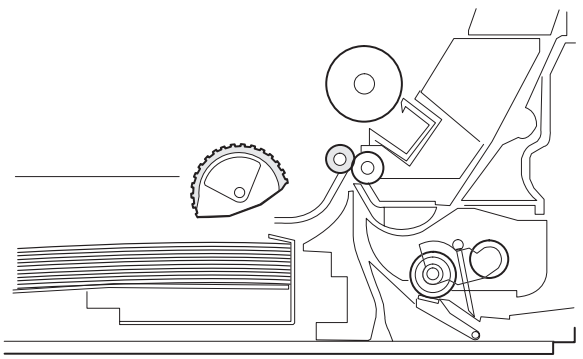


(1)	Scanner unit	(6)	Main charger	(11)	Pickup roller
(2)	Copy lamp	(7)	Heat roller	(12)	Manual paper feed tray
(3)	Lens unit	(8)	Pressure roller	(13)	Manual paper feed roller
(4)	LSU (Laser unit)	(9)	Drum	(14)	PS roller unit
(5)	Paper exit roller	(10)	Transfer unit	(15)	Paper feed roller

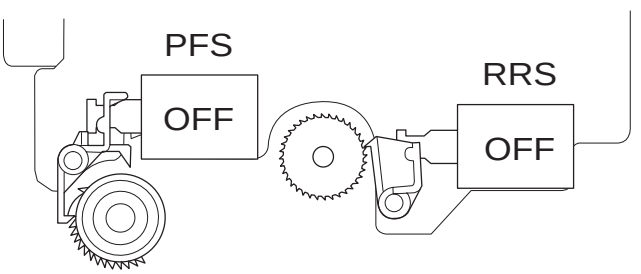
Paper feed is made in two ways; the tray paper feed and the manual paper feed. The tray is of universal-type, and has the capacity of 250 sheets. The front loading system allow you to install or remove the tray from the front cabinet.
The general descriptions on the tray paper feed and the manual paper feed are given below.

A. Cassette paper feed operation

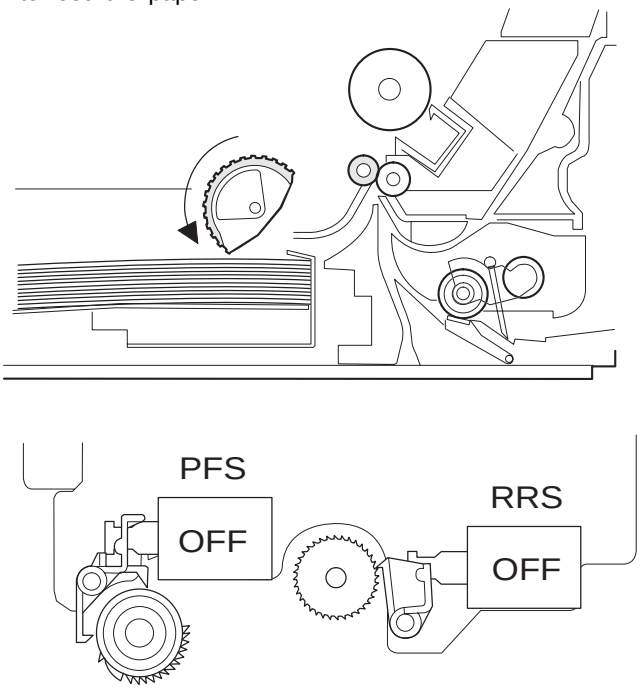
1. The figure below shows the positions of the pick-up roller, the paper feed clutch sleeve, and the paper feed latch in the initial state without pressing the COPY button after lighting the ready lamp.
   The paper feed latch is in contact with the projection of the clutch sleeve.



2. When the COPY button is pressed, the main drive motor starts rotating to drive each drive gear.
   The pick-up drive gear also is driven at that time. Since, however, the paper feed latch is in contact with the projection of the clutch sleeve, rotation of the drive gear is not transmitted to the pick-up roller, which does not rotate therefore.

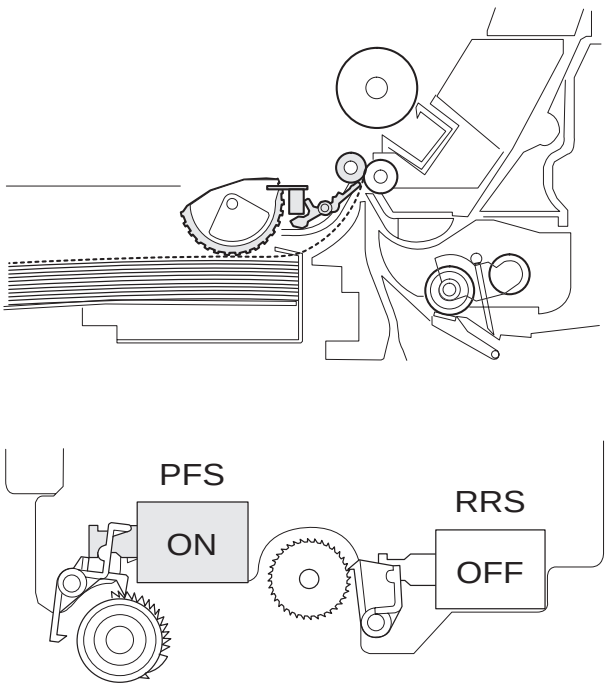


3. After about 0.1 sec from when the main motor start rotating, the tray paper feed solenoid (PFS) turns on at a moment. This disengages the paper feed latch from the projection of the clutch sleeve, transmitting rotation of the pick-up drive gear to the paper feed roller shaft, rotating the pick-up roller to feed the paper.



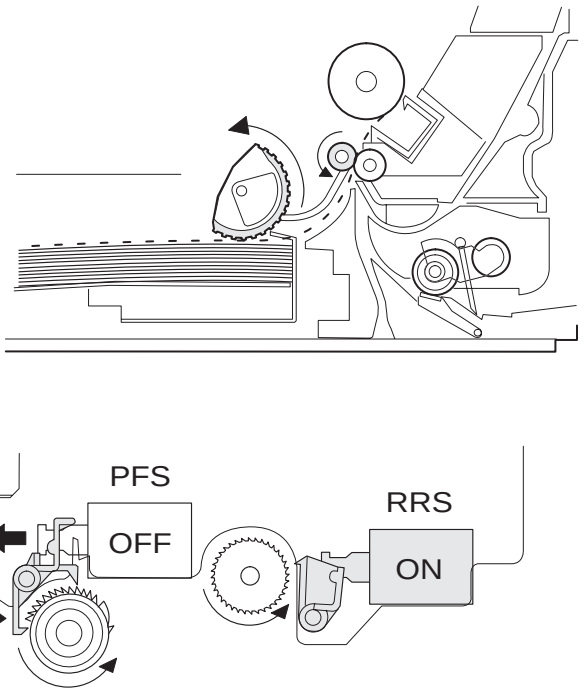
4. After more than half rotation of the pick-up roller, the paper feed latch is brought in contact with the projection of the clutch sleeve, stopping rotation of the pick-up roller.

5. At this time, the paper is fed passed the paper entry detection switch (PPD1), and detected by it. After about 0.15 sec from detection of paper by PPD1, the tray paper feed solenoid (PFS) turns on so that the clutch sleeve projection comes into contact with the paper feed latch to stop the pick-up roller. Then the pick-up roller rotates for about 0.15 sec so that the lead edge of the paper is evenly pressed on the resist roller, preventing against skew feeding.



6. To release the resist roller, the tray paper feed solenoid and the resist solenoid are turned on by the paper start signal to disengage the resist start latch from the clutch sleeve projection, transmitting rotation of the resist drive gear to the resist roller shaft. Thus the paper is transported by the resist roller.

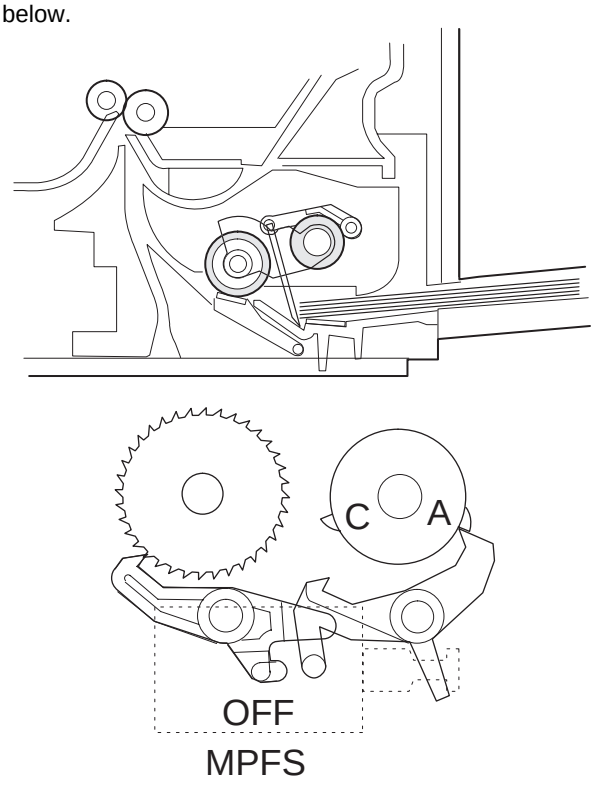
7. After the resist roller starts rotating, the paper is passed through the pre-transfer guide to the transfer section. Images are transferred on the paper, which is separated from the OPC drum by the drum curve and the separation section.



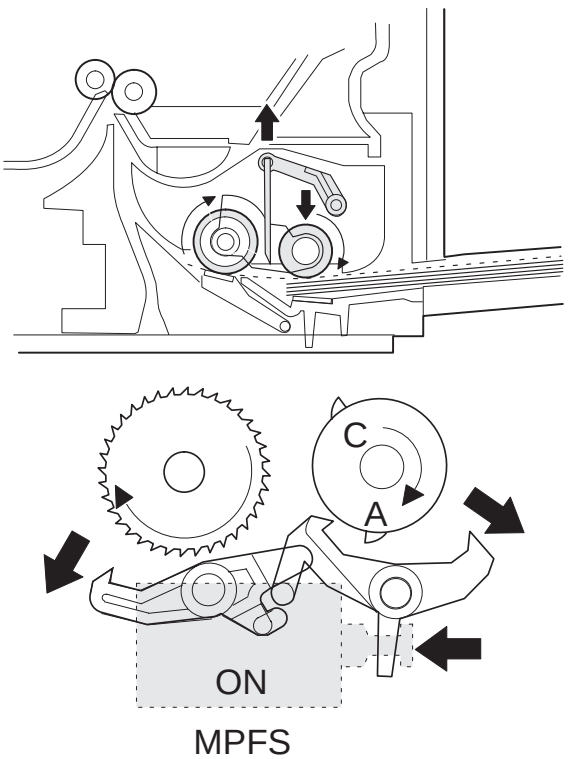
8. The paper separated from the drum is passed through the fusing paper guide, the heat roller (fusing section), POD (paper out detector) to the copy tray.

B. Manual multi paper feed operation

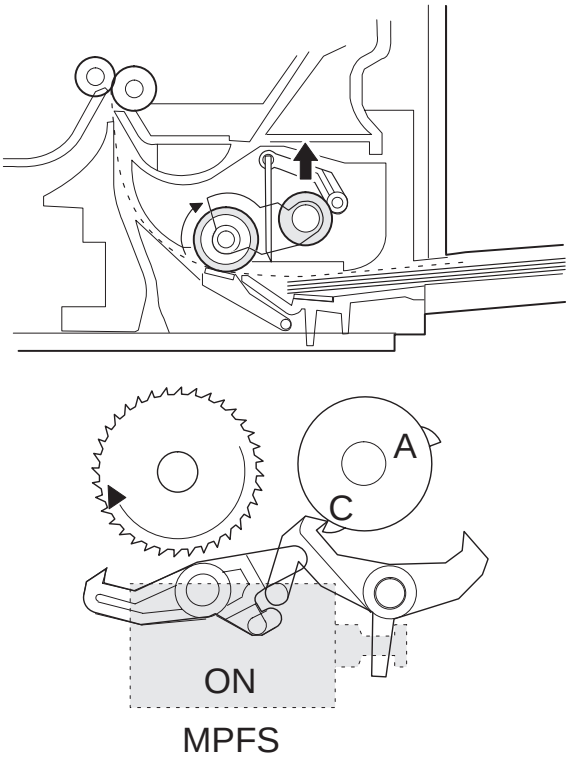
1. Before paper feed operation, the manual paper feed solenoid (MPFS) is turned OFF as shown in the figure below.



2. When the PRINT button is pressed, the manual paper feed solenoid (MPFS) turns on to disengage the manual paper feed latch A from the manual paper feed clutch sleeve A, rotating the manual paper feed roller and the manual take-up roller. At the same time, the manual paper feed stopper opens and the manual take-up roller is pressed to the surface of the paper to start paper feeding.

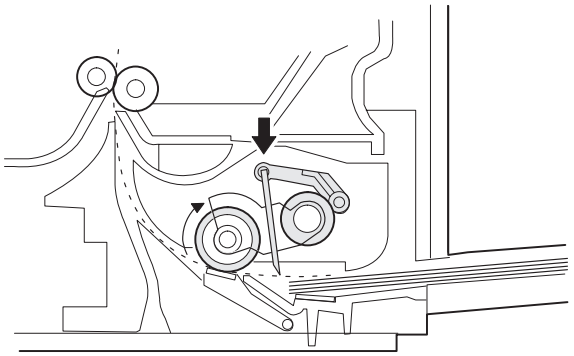


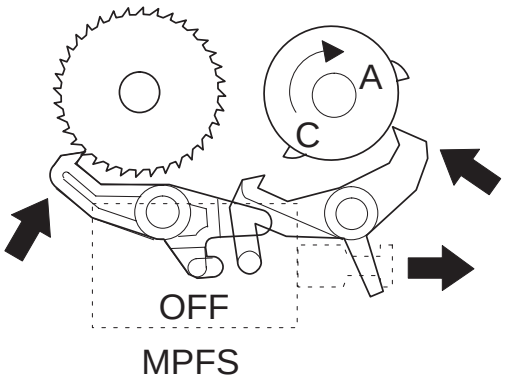
3. When pawl C of the manual paper feed clutch sleeve is hung on the manual feed latch, the manual feed stopper falls and the manual take-up roller rises. At that time, the manual paper feed roller is rotating.



4. The lead edge of the transported paper is pressed on the resist roller by the transport roller. Then the paper is stopped temporarily to make synchronization with the lead edge of the image on the OPC drum.
   The operations hereinafter are the same as the paper feed operations from the tray. (Refer to A-5 ~ 8.)

5. The solenoid turns off to close the gate and return to the initial state.





C. Conditions of occurrence of paper misfeed

(1) When the power is turned on:
PPD or POD is ON when the power is turned on.

(2) Copy operation

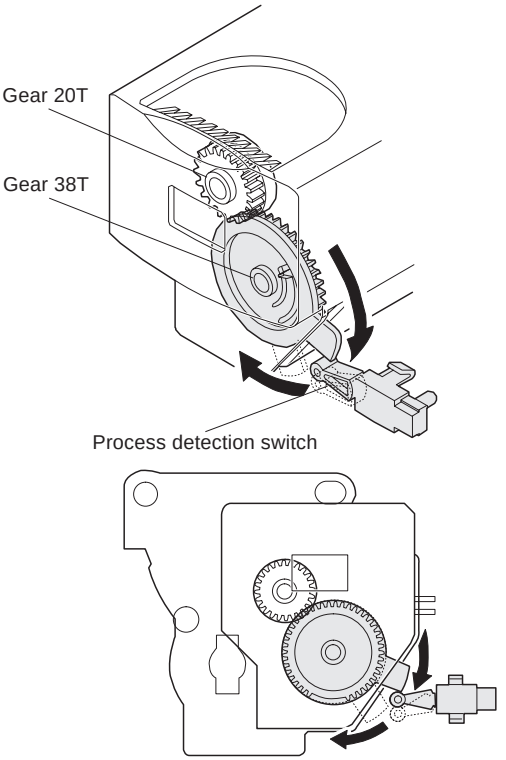
a. PPD1 jam
1) PPD1 does not turn off within 4 sec after turning on the resist roller.

b. PPD2 jam
1) PPD2 is off immediately after turning on the resist roller.
2) PPD2 does not turn off within 1.2 sec after turning off the resist roller.

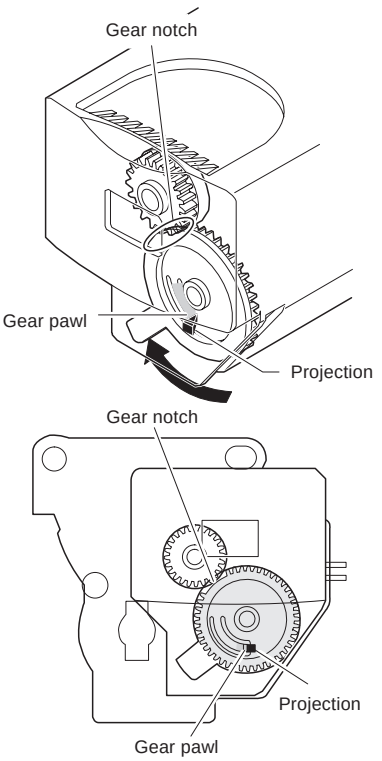
c. POD jam
1) POD does not turn on within 2.9 sec after turning on the resist roller.
2) POD does not turn off within 1.5 sec ~ 2.7 sec after turning off PPD2.

Process unit new drum detection mechanism

1. When the power is turned on, the detection gear 38T is rotated in the arrow direction by the detection gear 20T to push the microswitch (process detection switch) installed to the machine sensor cover, making a judgement as a new drum.



2. When the detection gear 38Y turns one rotation, there is no gear any more and it stops.
The latch section of the 38T gear is latched and fixed with the projection of the process cover.



[8] DISASSEMBLY AND ASSEMBLY

Before disassembly, be sure to disconnect the power cord for safety.

The disassembly and assembly procedures are described for the following sections:

1. High voltage section
2. Operation panel section
3. Optical section
4. Fusing section
5. Tray paper feed/transport section
6. Manual paper feed section
7. Rear frame section
8. Power section

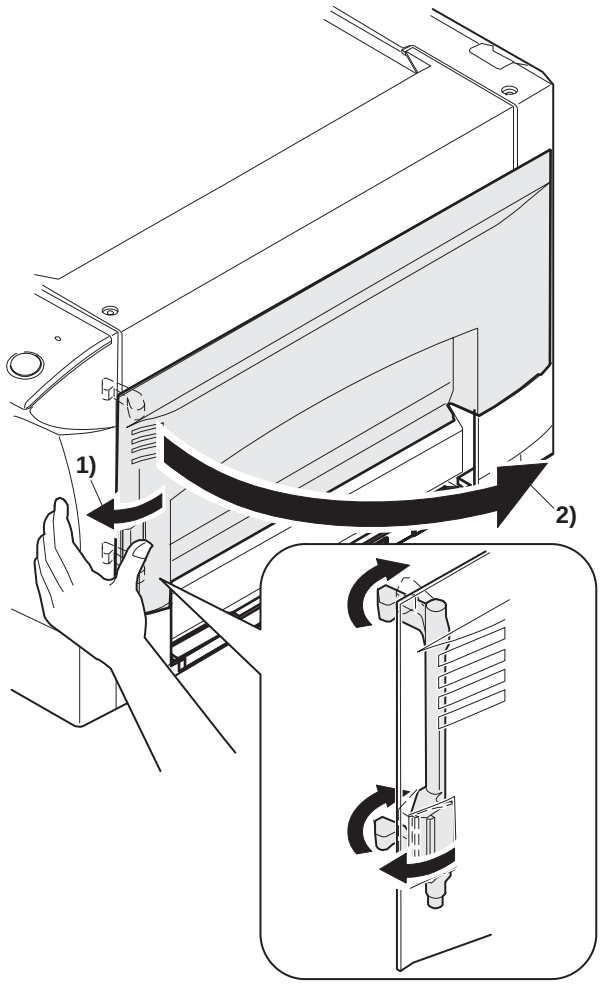
1. High voltage section

A. List

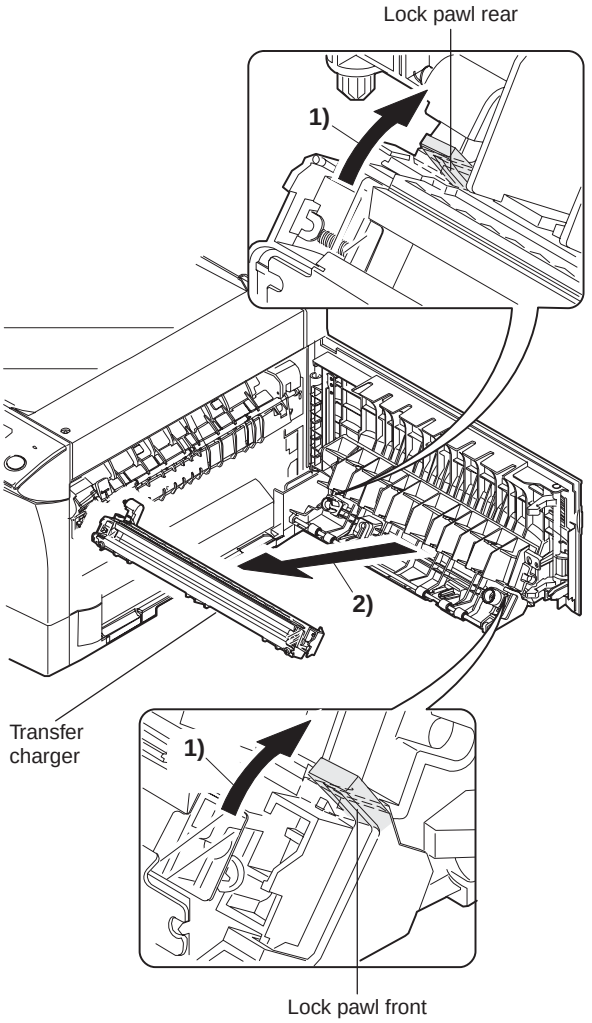
No.	Part name Ref.	page
1	Transfer charger unit	8-1
2	Charger wire	8-1

B. Disassembly procedure

(1) Press the side cover open/close button and open the side cover.



(2) Push up the lock pawls (2 positions) of the side cover, and remove the transfer charger.

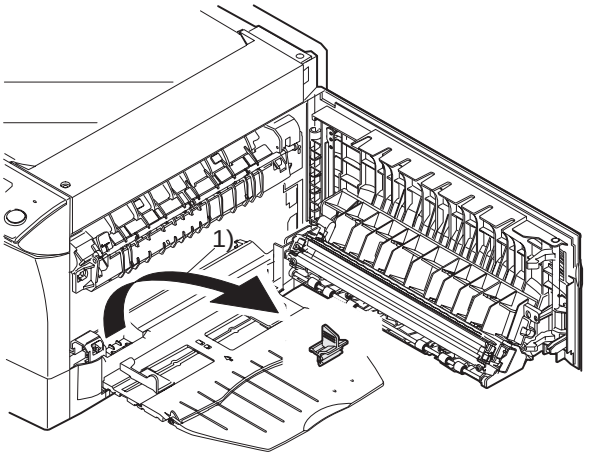


C. Assembly procedure

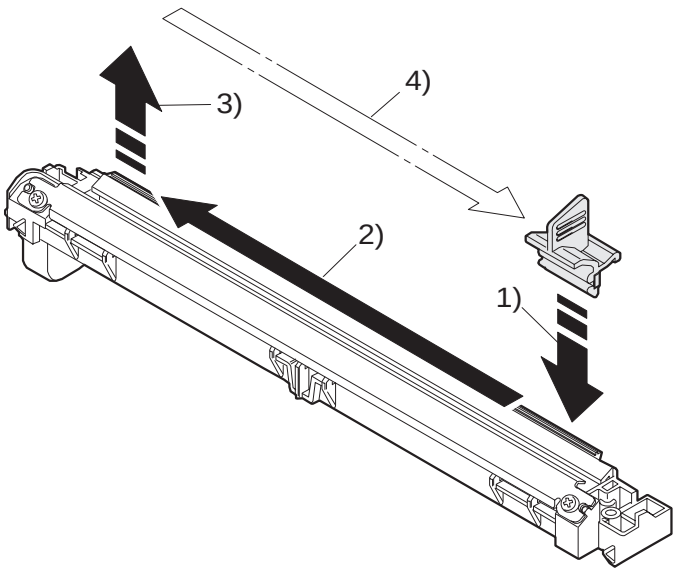
For assembly, reverse the disassembly procedure.

D. Charger wire cleaning

(1) Remove the charger cleaner from the manual paper feed unit.

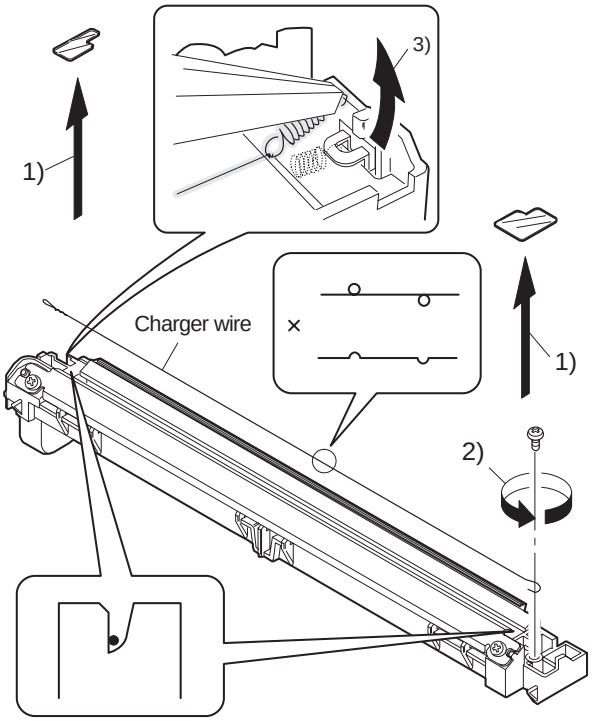


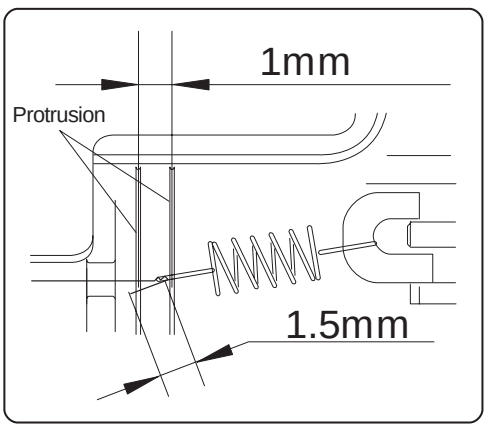
(2) Set the charger cleaner to the transfer unit, and move it reciprocally a few times in the arrow direction shown in the figure below.



E. Charger wire replacement

(1) Remove the TC cover and remove the screw.
(2) Remove the spring and remove the charger wire.
(3) Install a new charger wire by reversing the procedures (1) and (2). At that time, be careful of the following items.
- The rest of the charger wire must be within 1.5mm.
- The spring hook section (charger wire winding section) must be in the range of the projection section.
- Be careful not to twist the charger wire.





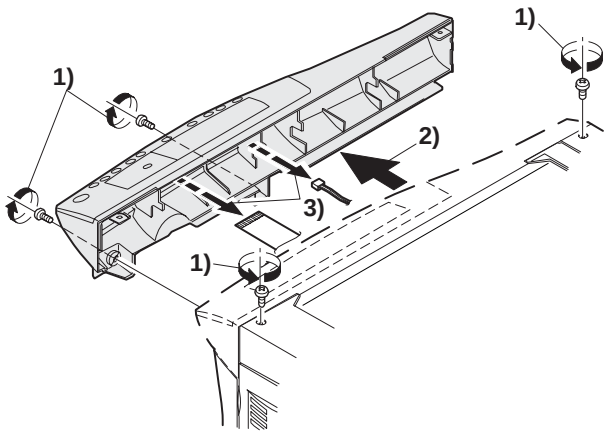
2. Operation panel section

A. List

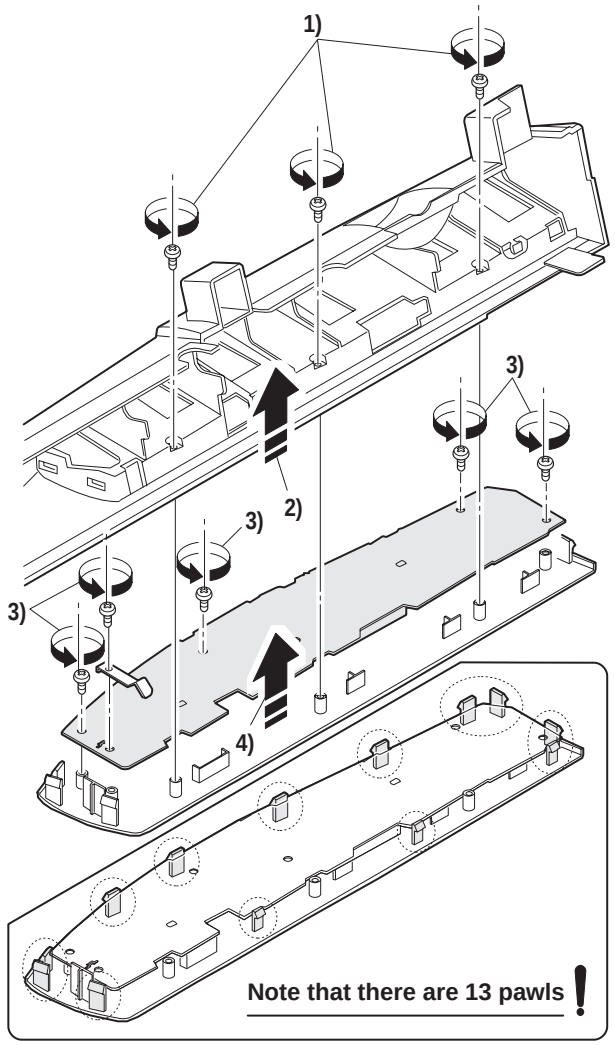
No.	Part name Ref.	page
1	Operation panel unit	8-3
2	Operation PWB	8-3

B. Disassembly procedure

(1) Remove the screws (4 pcs.), the harness, and the operation panel unit.



(2) Remove the screws (3 pcs.) and the PWB holder.
(3) Remove the screws (3 pcs.) and the operation PWB.



C. Assembly procedure

For assembly, reverse the disassembly procedure

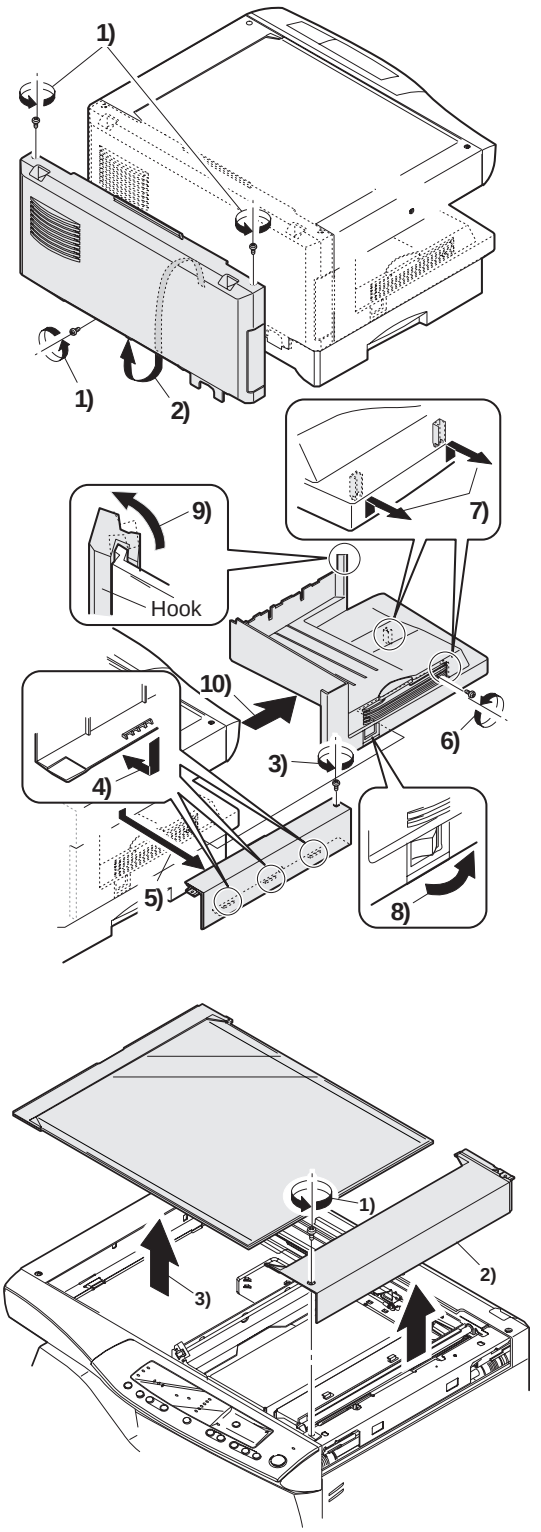
3. Optical section

A. List

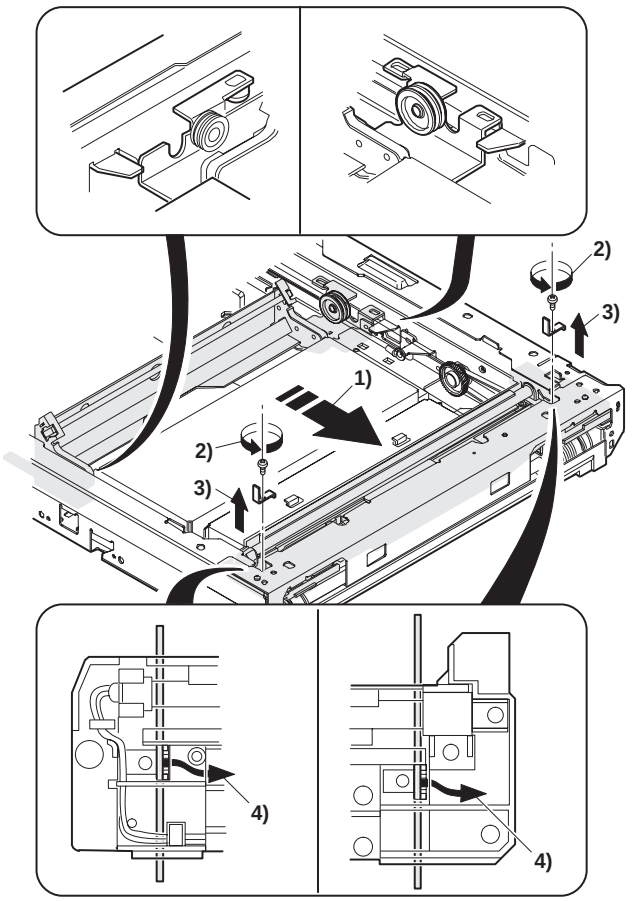
NO.	Part name Ref.	page
1	Copy lamp unit	8-4
2	Copy lamp	8-4
3	Lens unit	8-4

B. Disassembly procedure

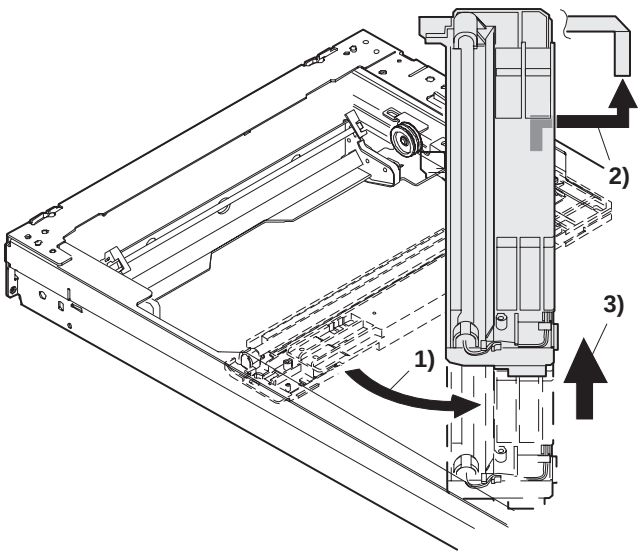
(1) Remove the parts as shown below.



(2) Remove the screws (2pcs.), and remove the copy lamp unit from the mirror base drive wire.

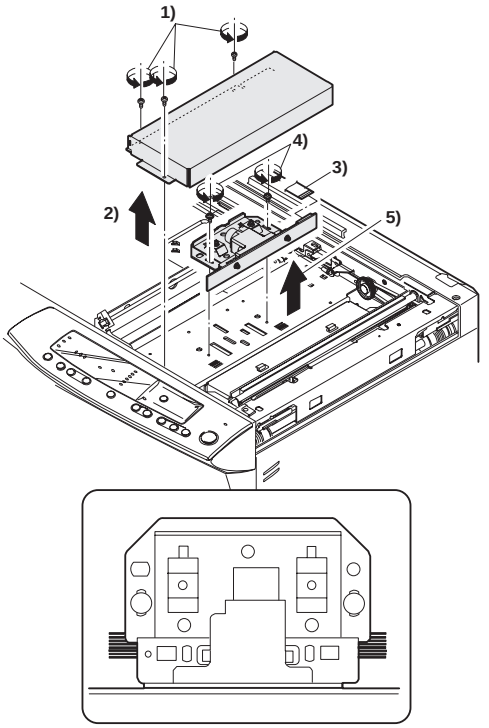


(3) Pull the copy lamp unit toward you to remove the harness.



(4) Remove the screw (4 pc) and remove the cover.

(5) Remove the screws (2 pcs.), the harness, and the optical unit.



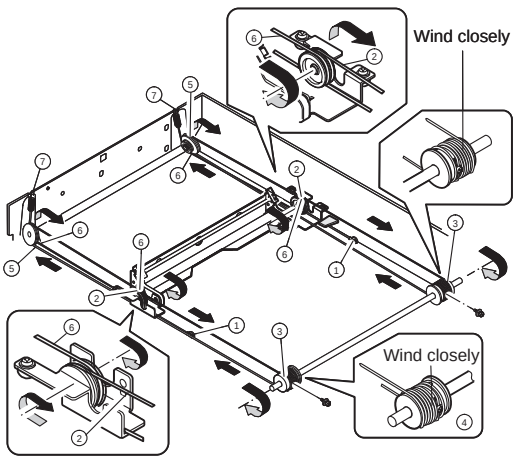
When installing the lens unit, refer to “9-7. Lens unit installation reference.”

C. Assembly procedure

Basically reverse the disassembly procedure.
The mirror base drive wire and the lens drive wire stretching methods are described below.

a. Mirror base drive wire stretching

1. Hook the metal fixture of the mirror base drive wire on the projection of the optical base plate.
2. Pass the wire through the external groove of the double pulley. (At that time, check that No. 2/3 mirror unit is in contact with the mirror base positioning plate.)
3. Hold so that the winding pulley groove is up, and wind the mirror base drive wire 9 turns.
4. Put the 8th turn of the mirror base drive wire in the winding pulley groove and fix with a screw.
5. Pass the wire under Mo. 2/3 mirror unit plate and wind it around pulley A.
6. Pass the wire through the internal groove of the double pulley, and pass through pulley B.
7. Hook the spring hook on the optical base plate.



After installing the mirror base drive wire, be sure to perform main scanning direction image distortion adjustment.

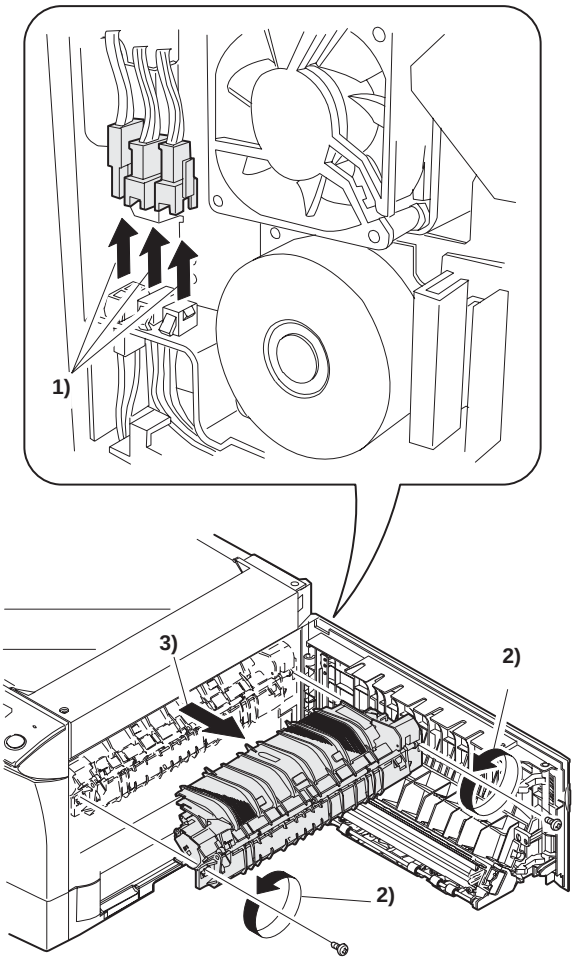
4. Fusing section

A. List

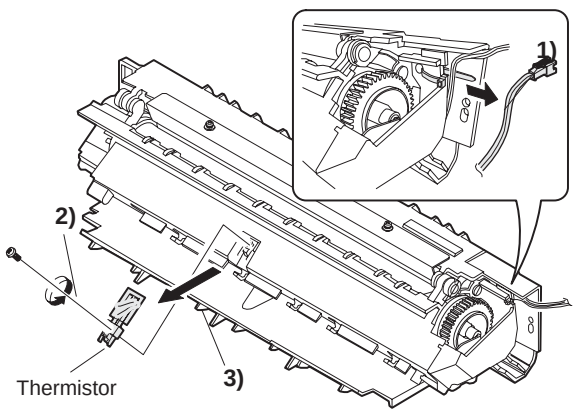
No.	Part name Ref.	page
1	Thermistor	8-5
2	PPD2 sensor	8-5
3	Heater lamp	8-6
4	Pressure roller	8-5
5	Heat roller	8-5

B. Disassembly procedure

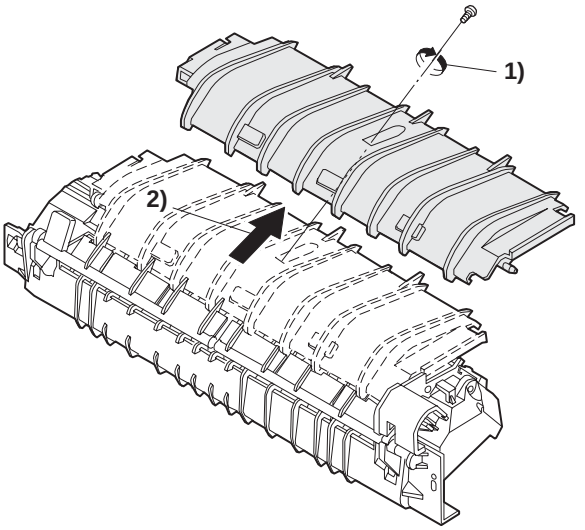
(1) Remove the connectors (3 pcs.) of the rear cabinet.
(2) Open the side cover, remove two screws, and remove the fusing unit.



(3) Cut the binding band, remove the screw, and remove the thermistor.

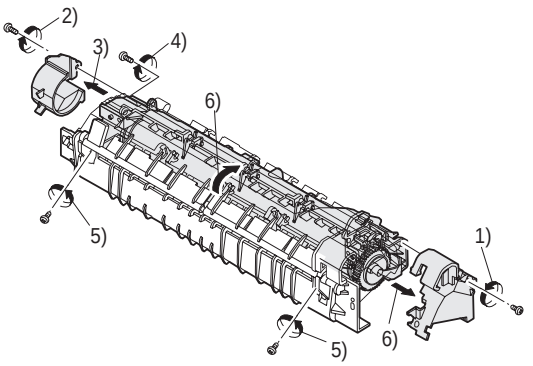


(4) Remove the screw and remove the U-turn guide.

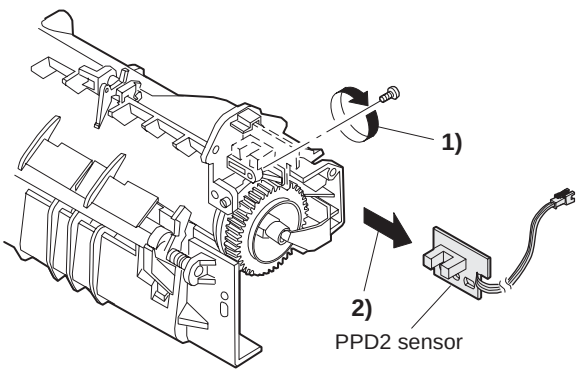


Pressure roller section disassembly

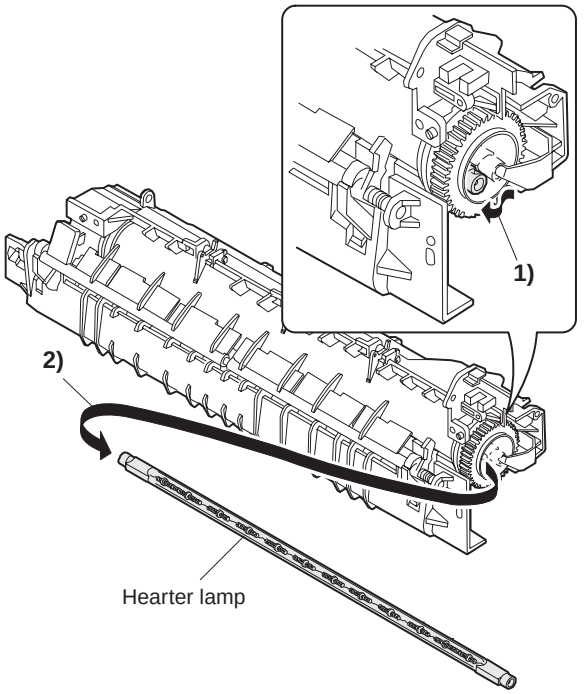
(5) Remove the three screws, remove the fusing cover lower on the right side, and open the heat roller section.



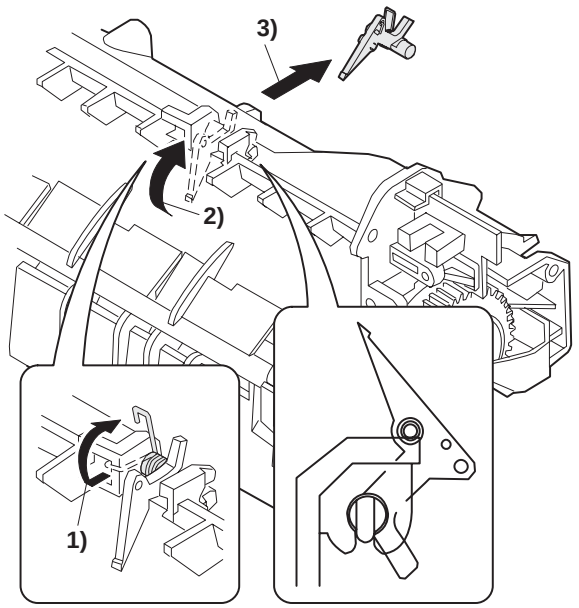
(6) Remove the screw and remove the PPD2 sensor.



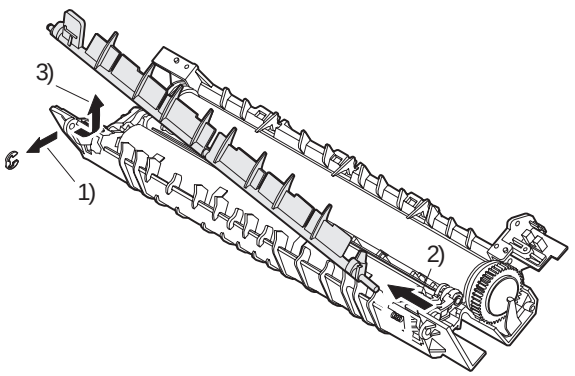
(7) Remove the plate spring on the right and remove the heater lamp.



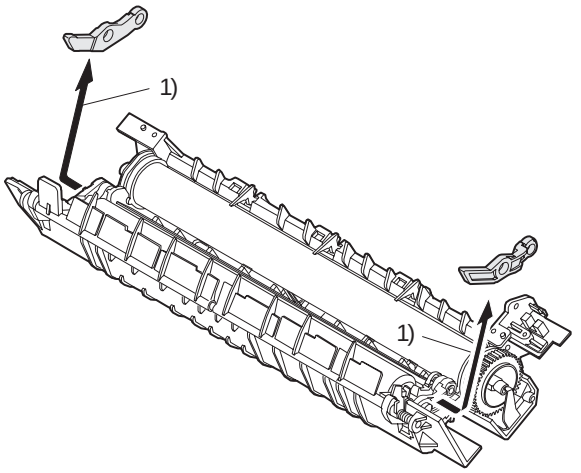
(8) Remove the spring and remove the separation pawls (3 pcs.).



(9) Remove the E-ring and remove the reverse gate.

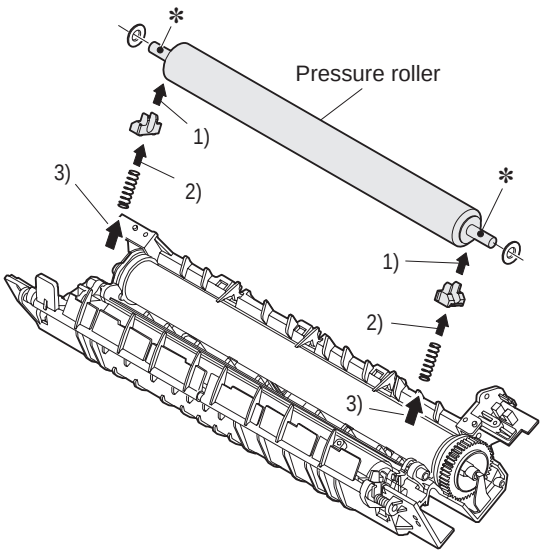


(10) Remove the pressure release levers on the right and the left sides.



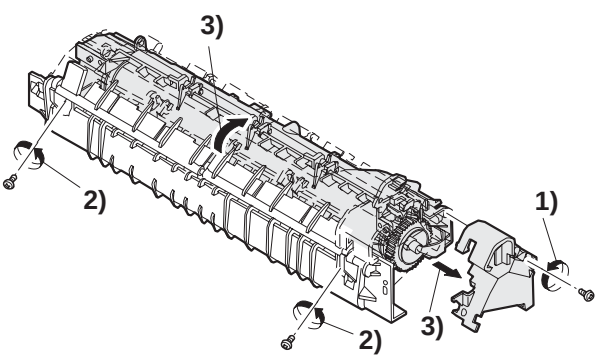
(11) Remove the pressure roller, the pressure bearing, and the pring.

Note: Apply grease to the sections specified with ✻.

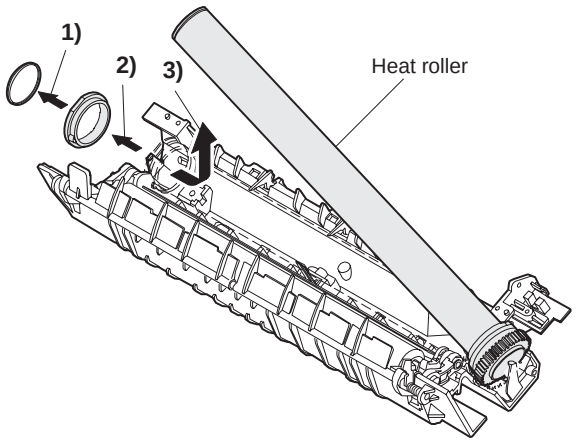


Heat roller disassembly
(Continued from procedure (4).)

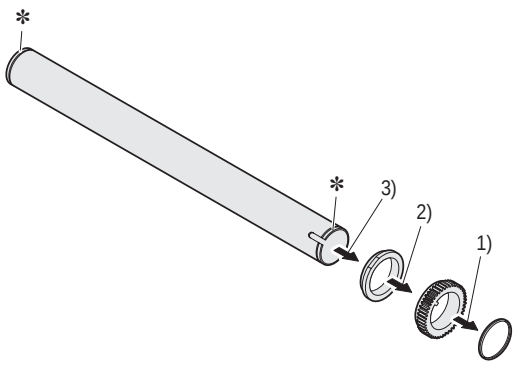
(5) Remove screws, remove the fusing cover, and open the heat roller section.



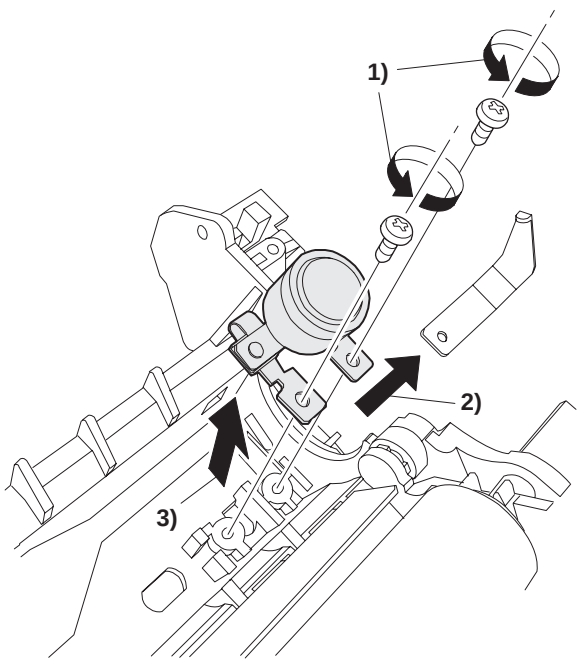
(6) Remove the C-ring and the fusing bearing, and remove the heat roller.



(7) Remove the parts from the heat roller.
Note: Apply grease to the sections specified with ✻.



(8) Remove two screws and remove the thermo unit.



C. Assembly procedure

For assembly, reverse the disassembly procedure.

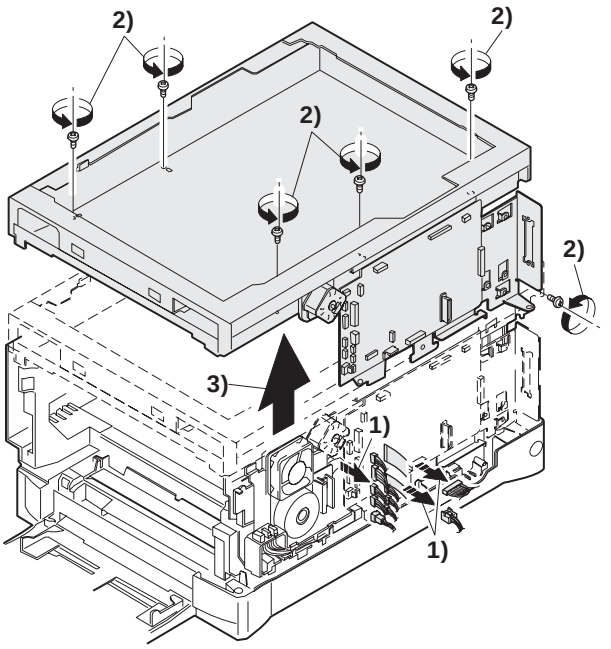
5. Tray paper feed/transport section

A. List

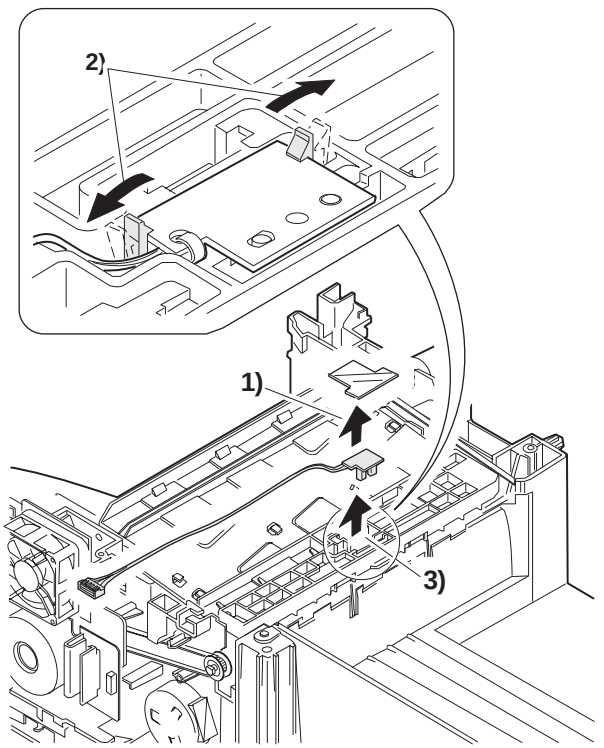
No.	Part name Ref.	page
1	PPD1 sensor PWB	8-11
2	LSU unit	8-10
3	Intermediate frame unit	8-10
4	Paper feed roller	8-11

B. Disassembly procedure

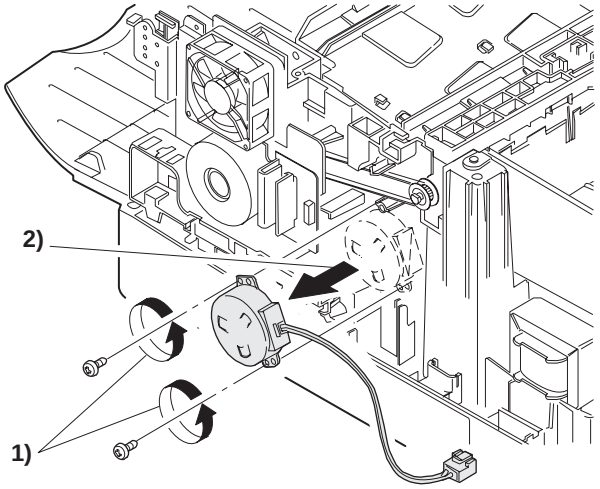
(1) Remove six connectors and screws of the main PWB, and lift the optical unit and the main PWB to remove.



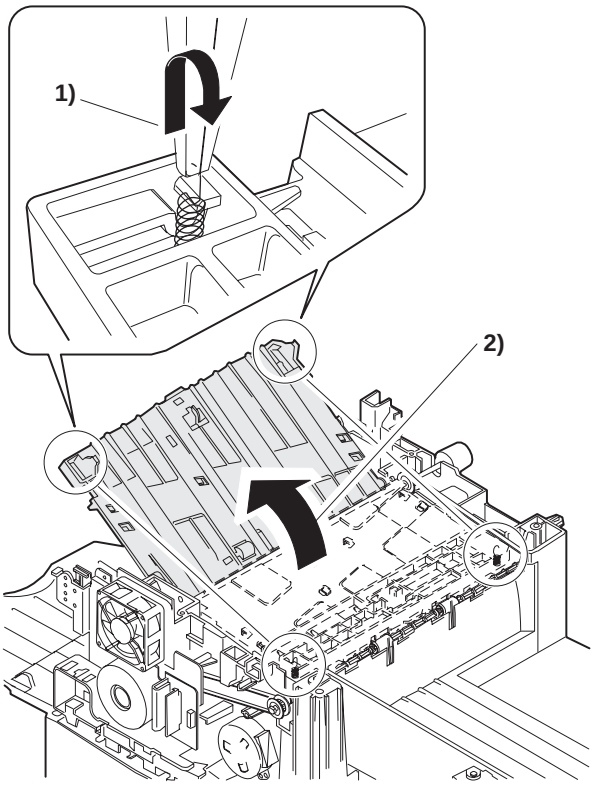
(2) Remove the PWB insulation mylar and remove the paper transport detection sensor (PPD2).



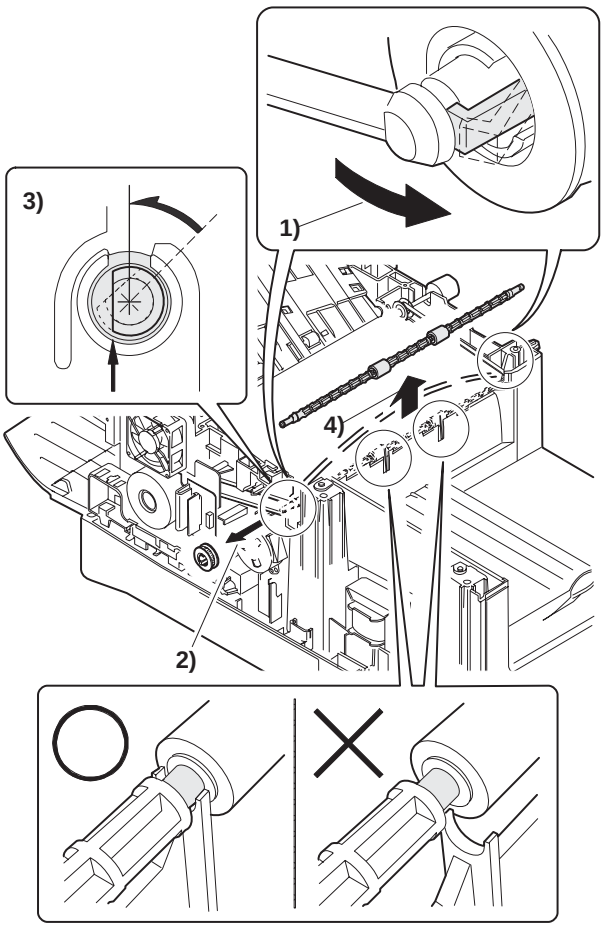
(3) Remove two screws and remove the toner motor.



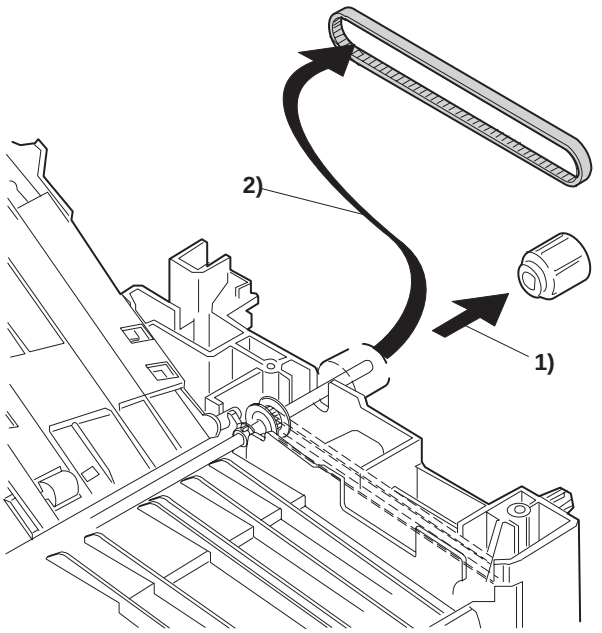
(4) Remove two springs and open the intermediate frame unit.



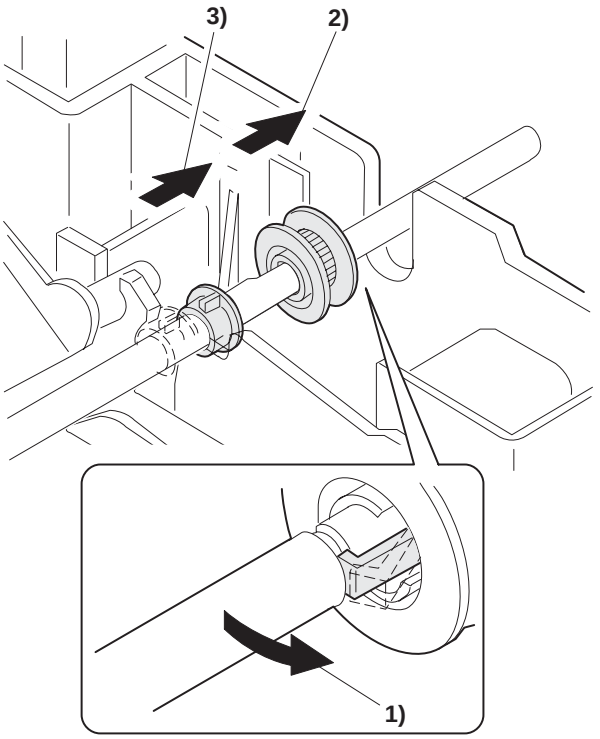
(5) Remove the pulleys on the both sides and remove the paper exit roller.



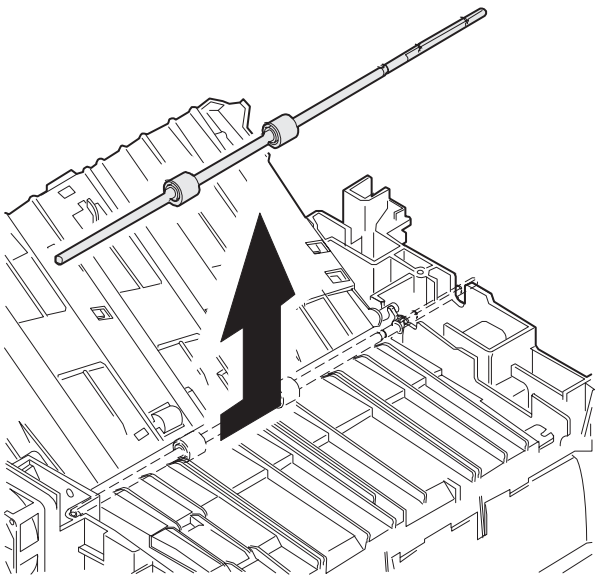
(6) Pull out the paper exit roller knob and remove the belt.



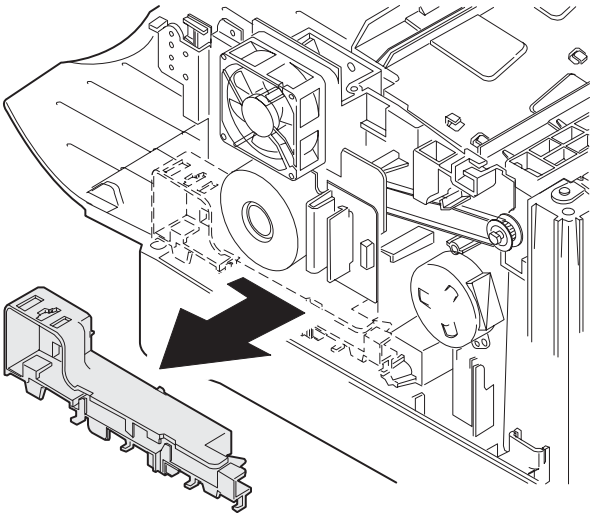
(7) Release the belt pulley (a) lock and remove the belt pulley bearing.



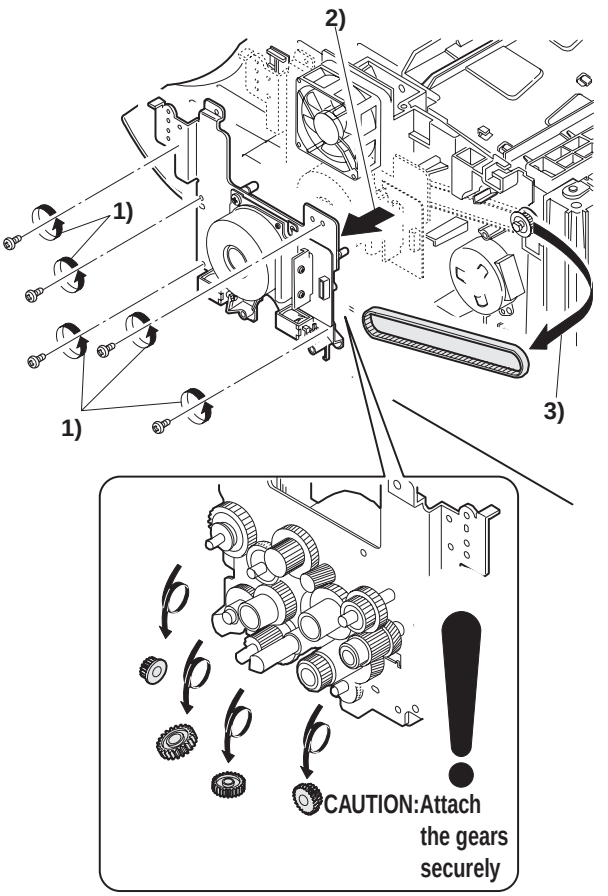
(8) Remove the paper exit roller.



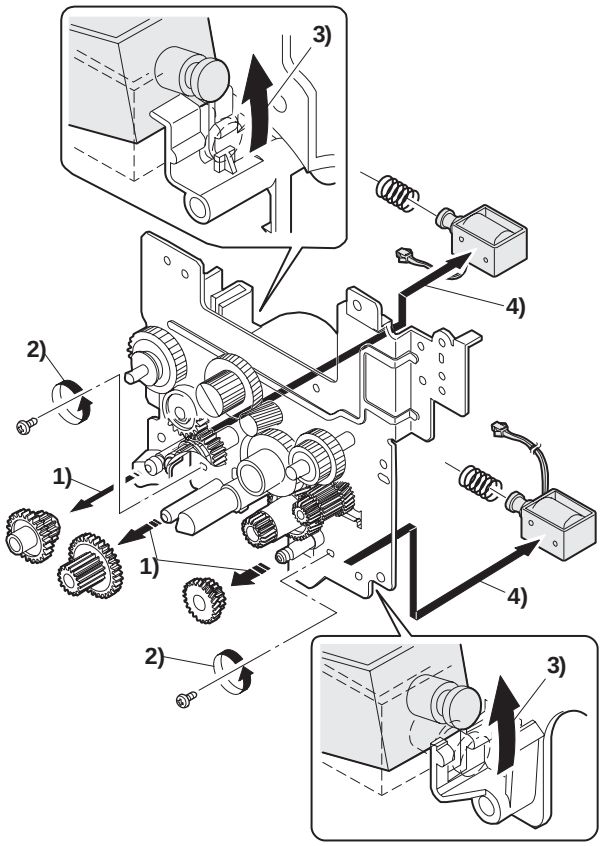
(9) Remove the harness guide.



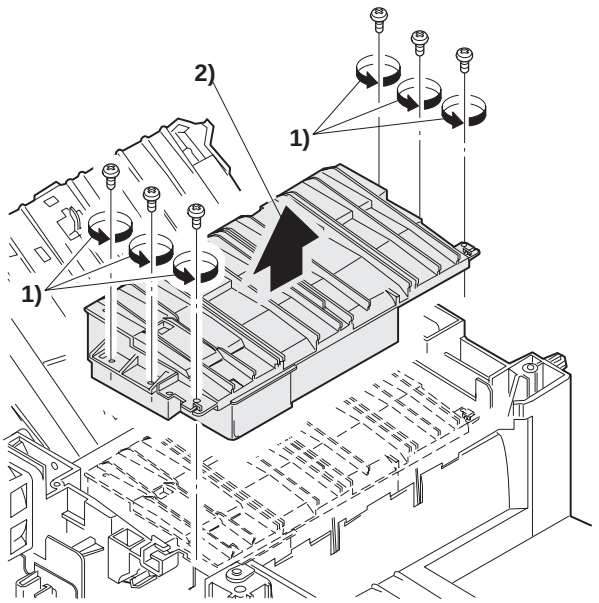
(10) Remove five screws and remove the main drive plate and the belt.



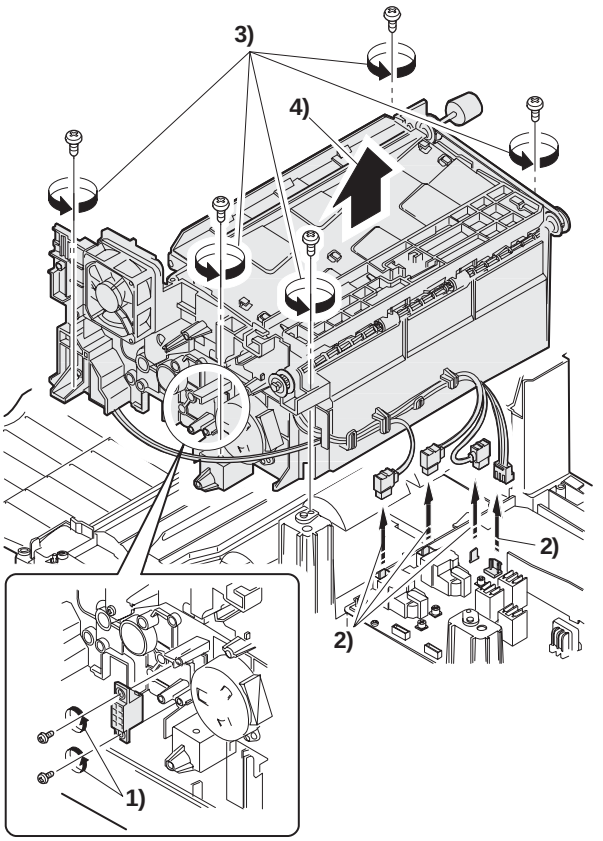
(11) Remove the parts as shown below, and remove the pressure release solenoid and the paper feed solenoid.



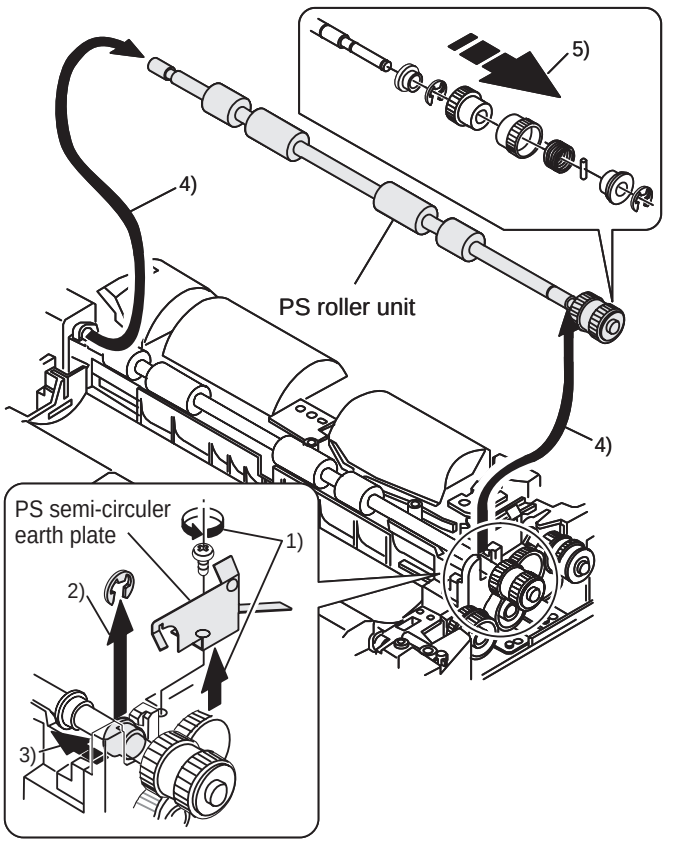
(12) Remove six screws and remove the LSU unit.



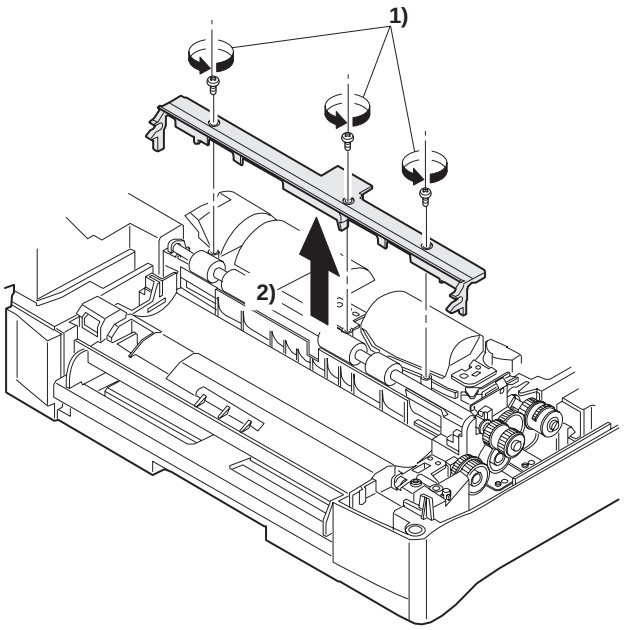
(13) Remove two screws and remove the fusing connector.
(14) Remove five screws and the connector, and lift the intermediate frame unit to remove.



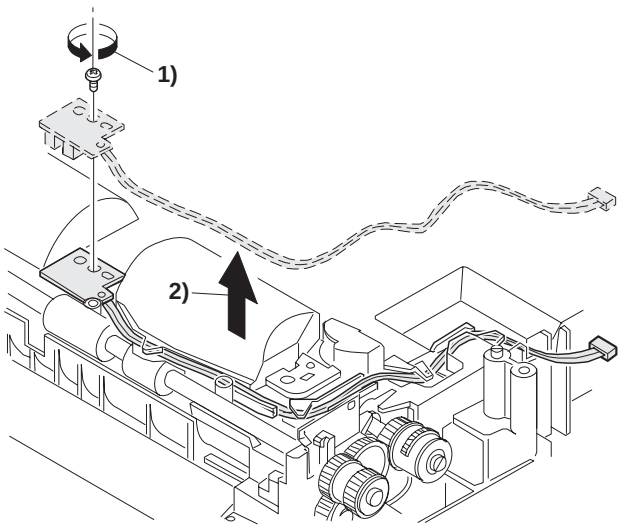
(15) Remove the screw and the E-ring, and remove the PS semi-circular earth plate and the PS roller unit.
(16) Remove the E-ring and remove the spring clutch from the PS roller unit.



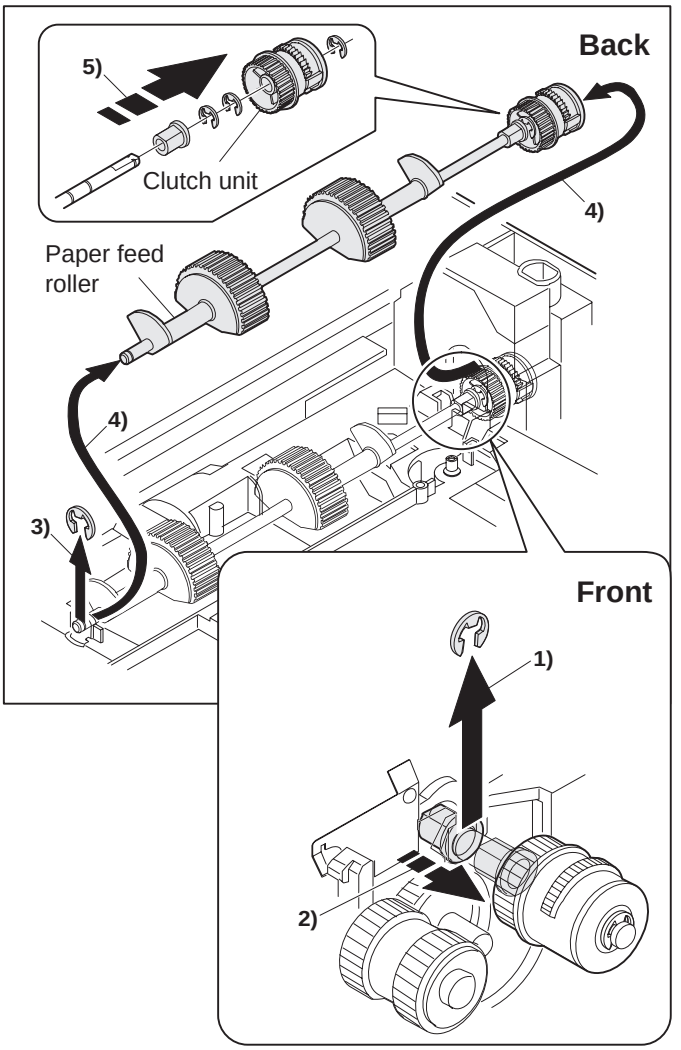
(17) Remove three screws and remove the TC front paper guide.



(18) Remove the screw and the connector, and remove the PPD1 sensor PWB.



(19) Remove two E-rings and remove the paper feed roller.
(20) Remove three E-rings and remove the clutch unit.



C. Assembly procedure

For assembly, reverse the disassembly procedure.

6. Manual paper feed section

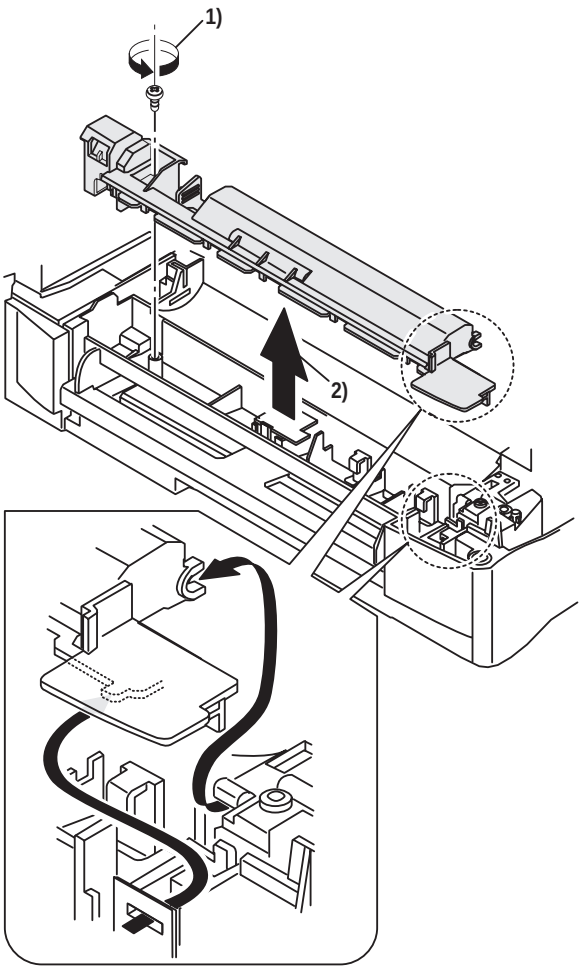
A. List

No.	Part name Ref.	page
1	Manual transport roller	8-15
2	Cassette detection switch	8-13
3	PPD1 sensor PWB	8-13
4	Side door detection unit	8-12

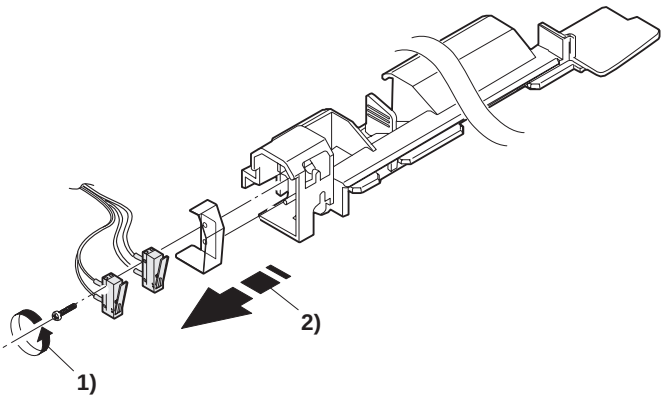
B. Disassembly procedure

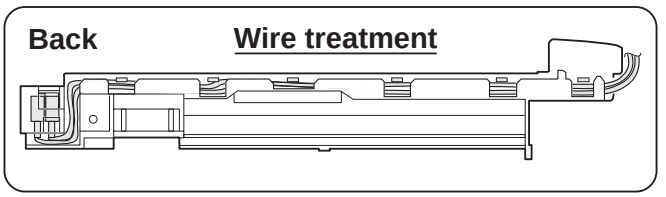
Single unit

(1) Remove the screw and remove the single upper cover.

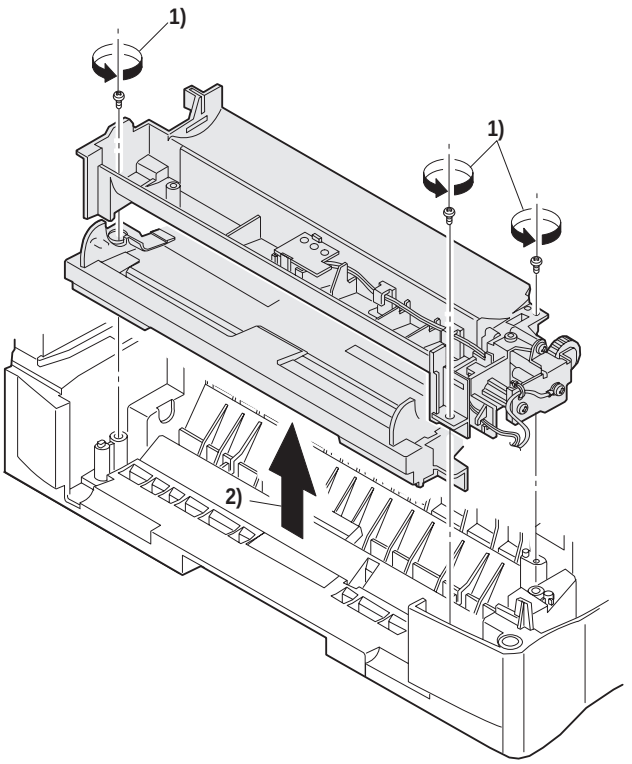


(2) Remove the screw and remove the side door detection unit.

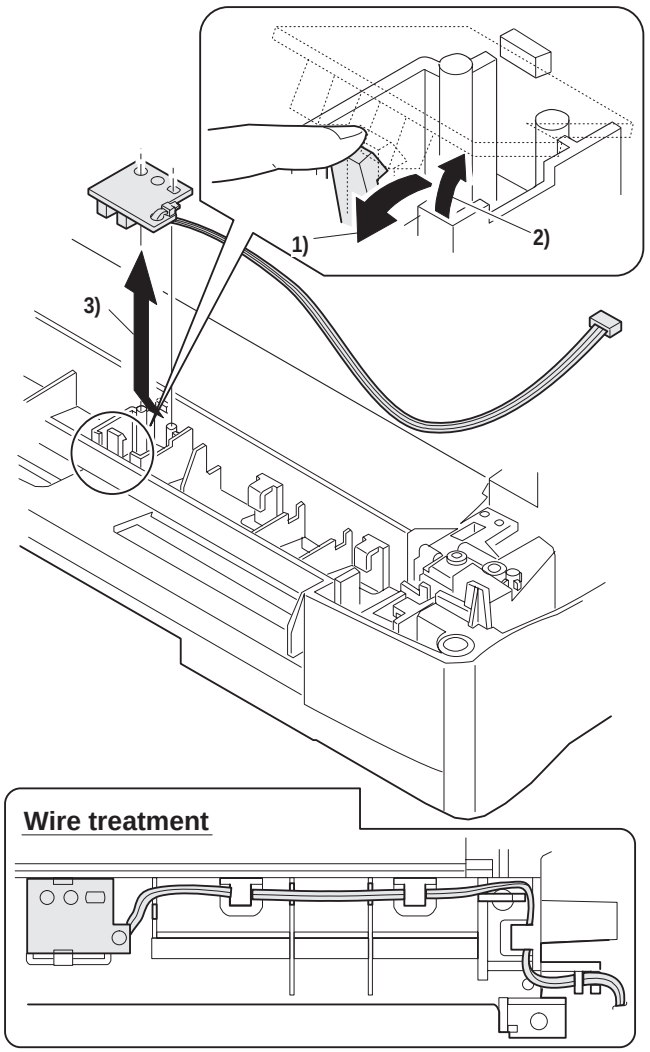




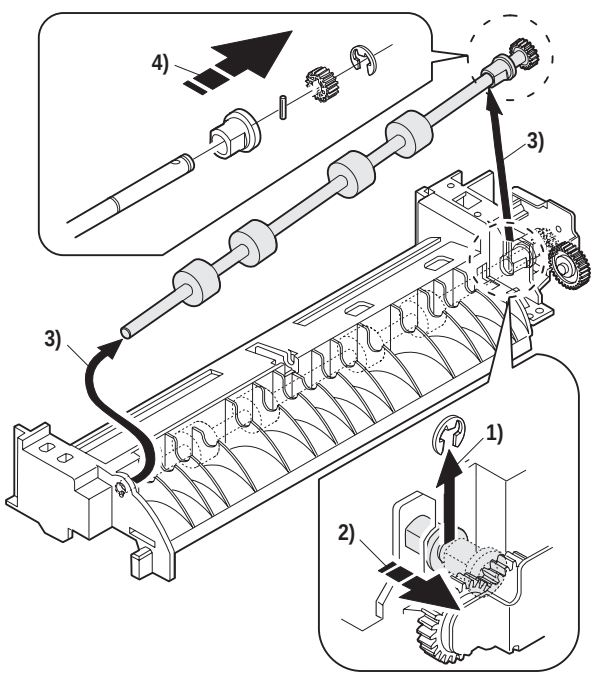
(3) Remove three screws and remove the single manual feed upper frame.



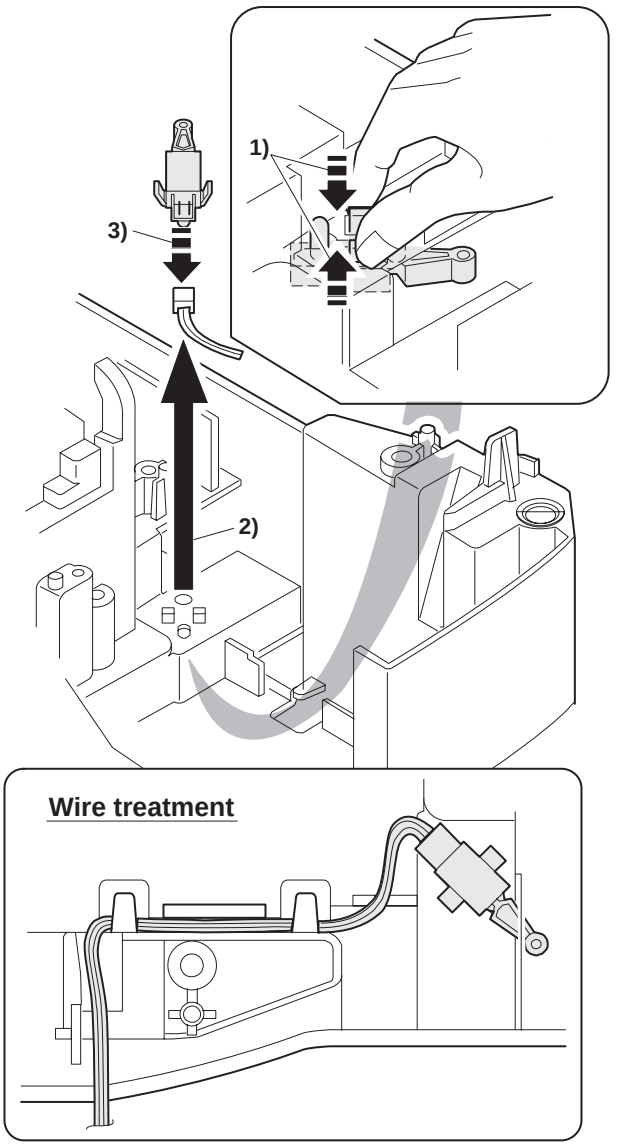
(4) Remove the PPD1 sensor PWB.



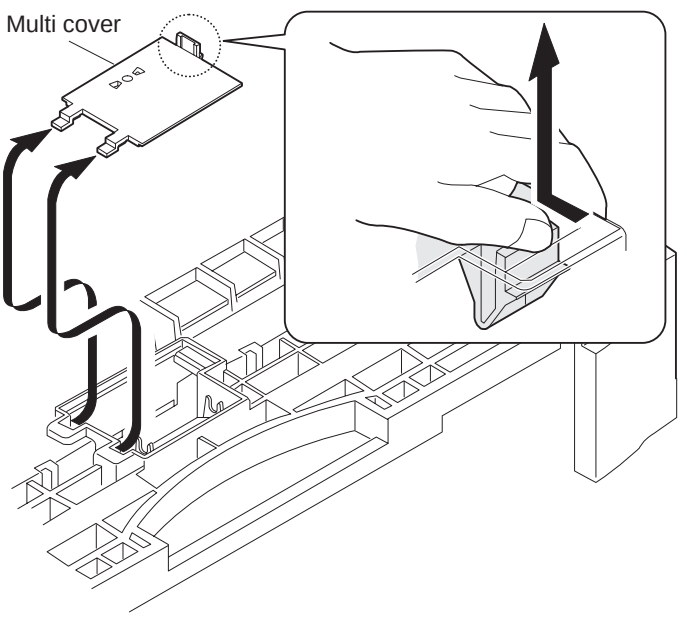
(5) Remove the E-ring and remove the manual paper feed transport roller.



(6) Remove the cassette detection switch.

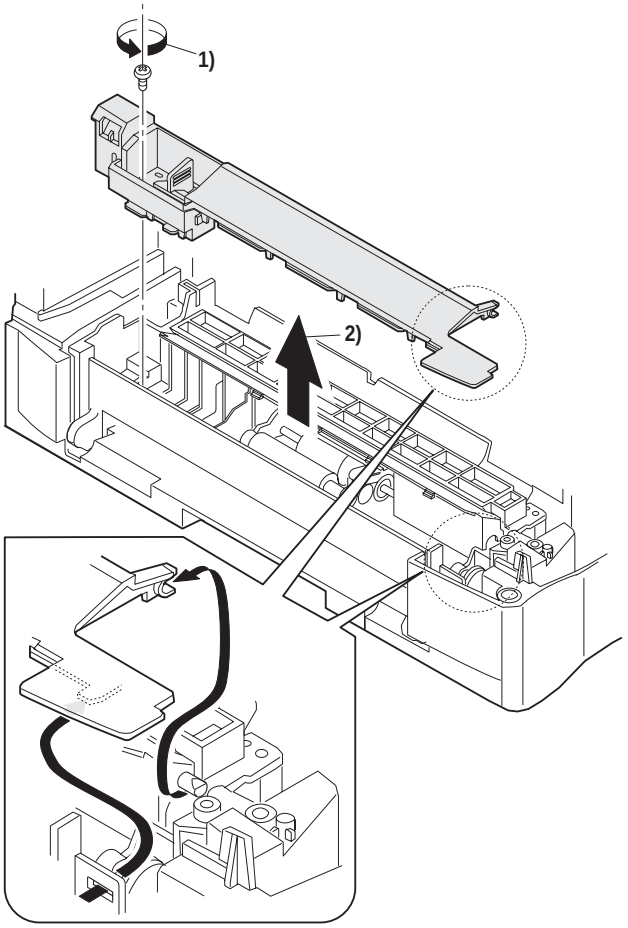


(7) Remove the multi cover.

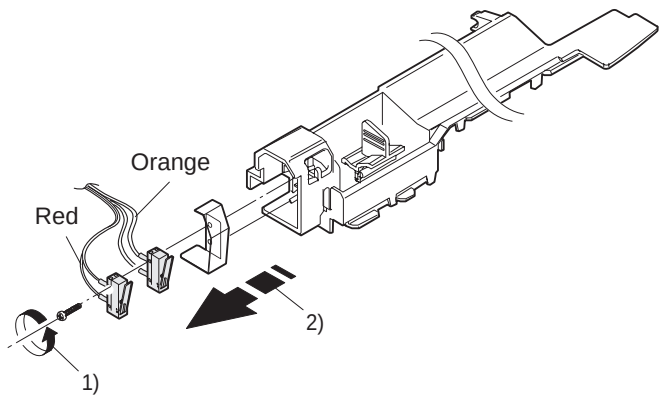


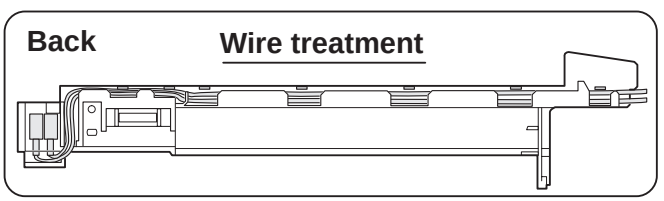
Multi unit

(1) Remove the screw and remove the multi upper cover.

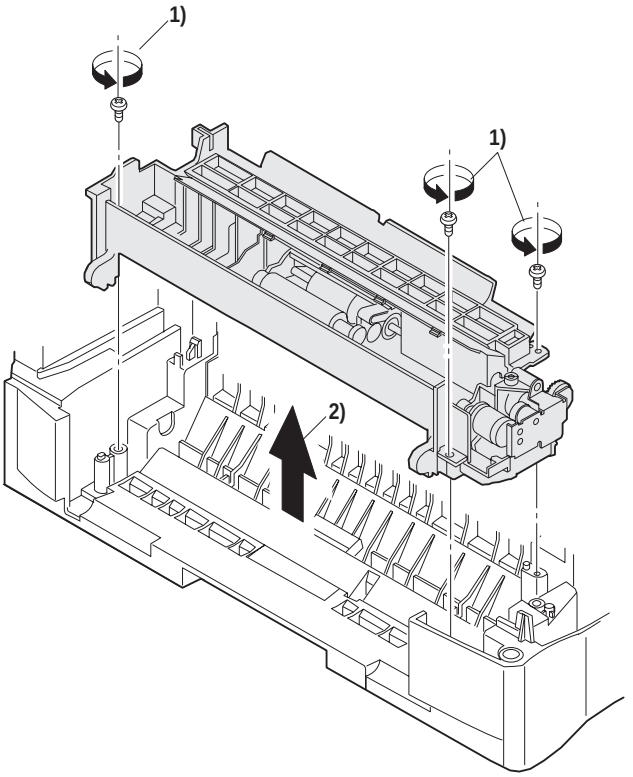


(2) Remove the screw and remove the side door detection unit.

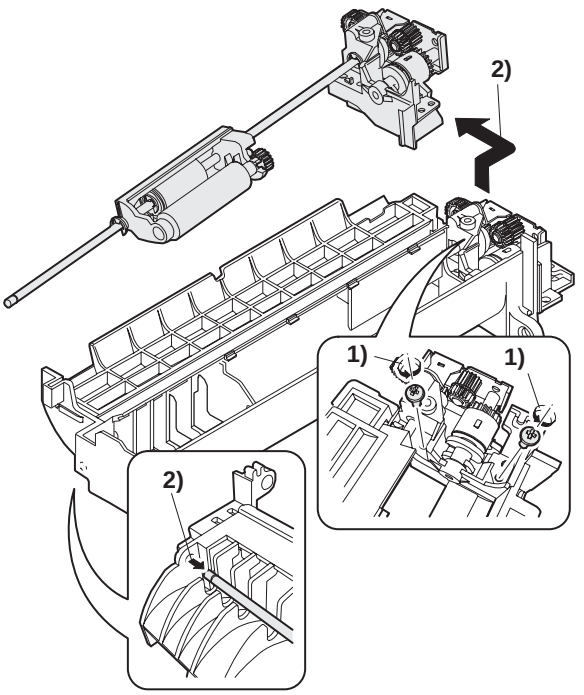




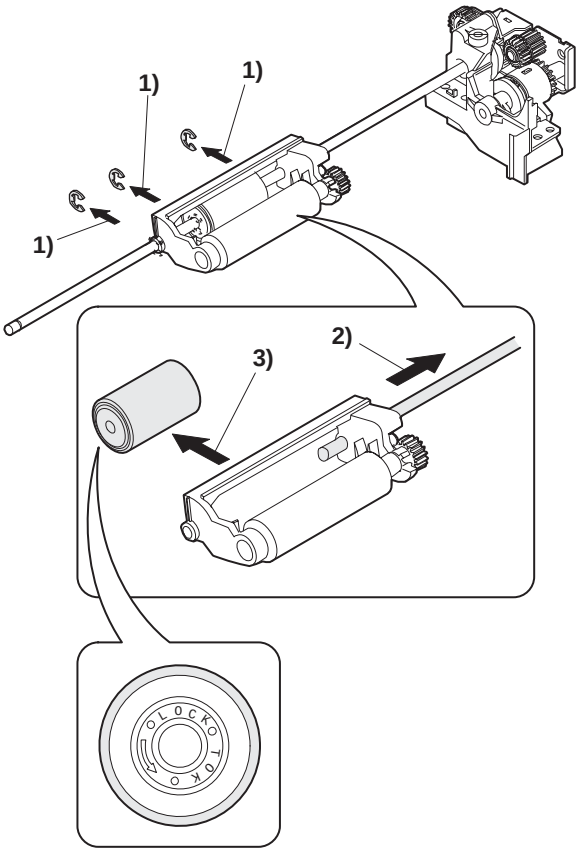
(3) Remove three screws and remove the multi paper feed upper frame.



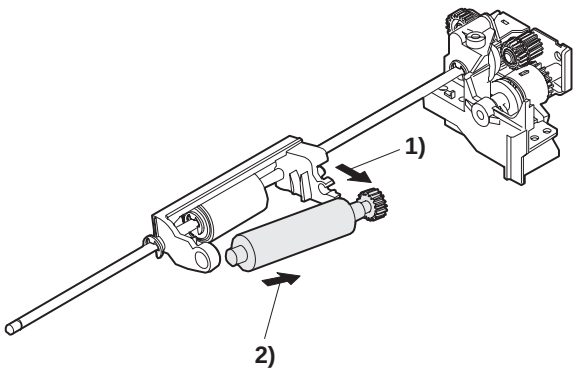
(4) Remove two screws and remove the multi feed bracket unit from the multi paper feed upper frame.



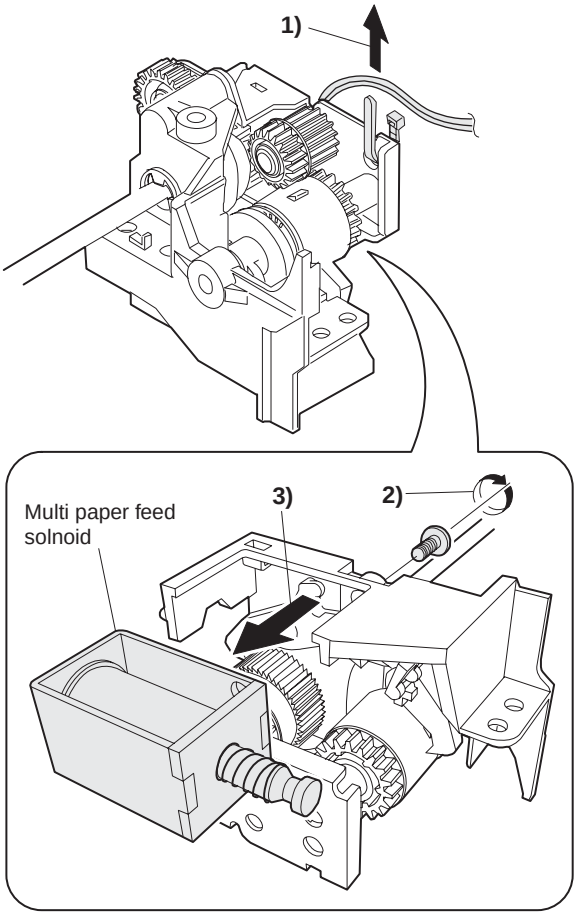
(5) Remove three E-rings and remove the manual paper feed roller B9.



(6) Remove the pick-up roller.



(7) Cut the binding band and remove the multi paper feed solenoid.

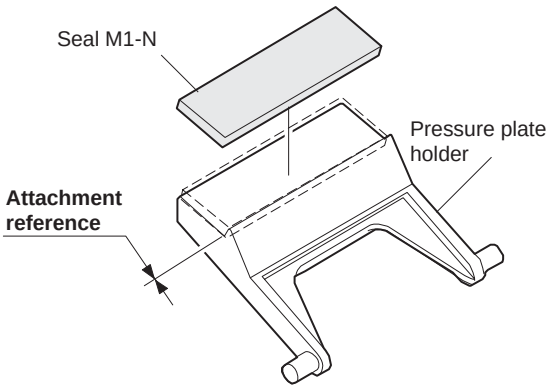


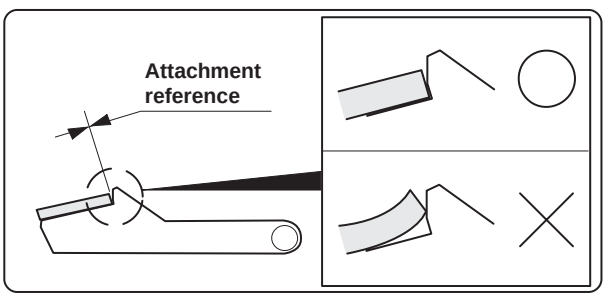
C. Assembly procedure

For assembly, reverse the disassembly procedure.

D. Pressure plate holder attachment

(1) Attach the pressure plate holder so that the resin section is not covered with the seal M1-N.





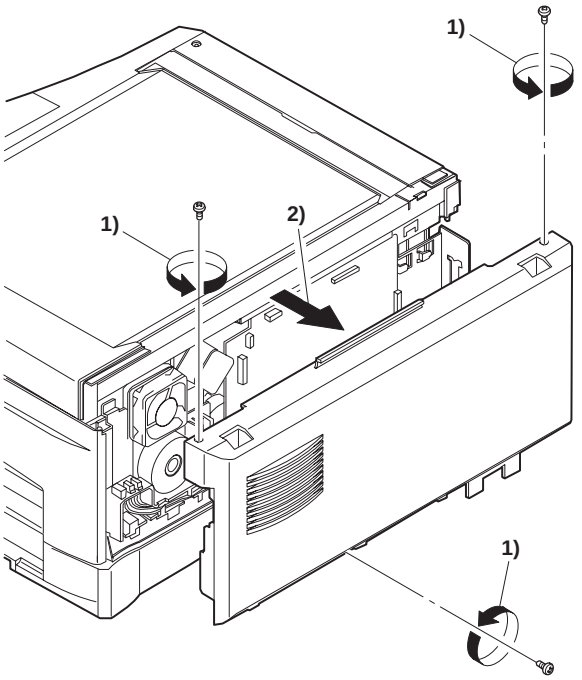
7. Rear frame section

A. List

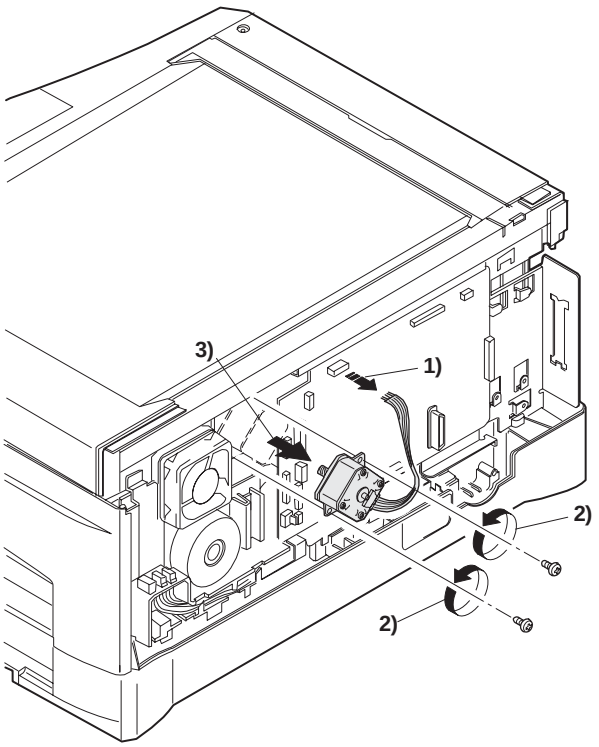
No.	Part name Ref.	page
1	Mirror motor	8-16
2	Main motor	8-16
3	Exhaust fan motor	8-16

B. Disassembly procedure

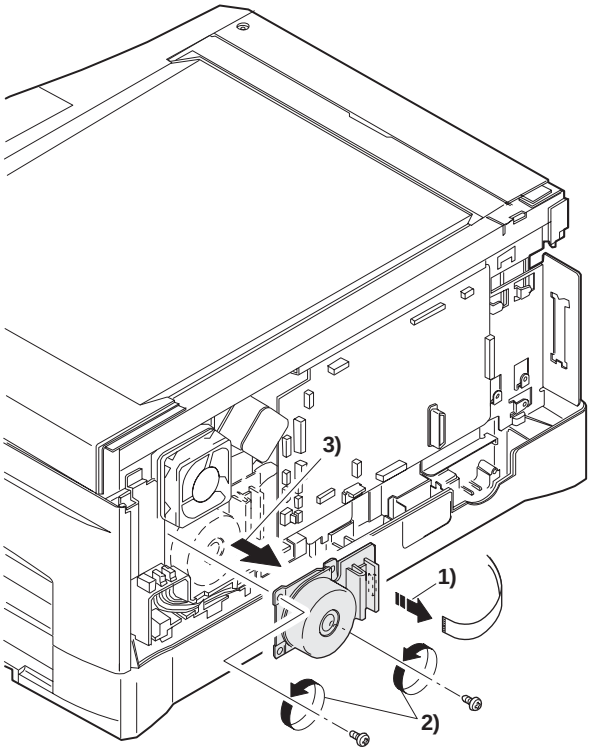
(1) Remove three screws and remove the rear cabinet.



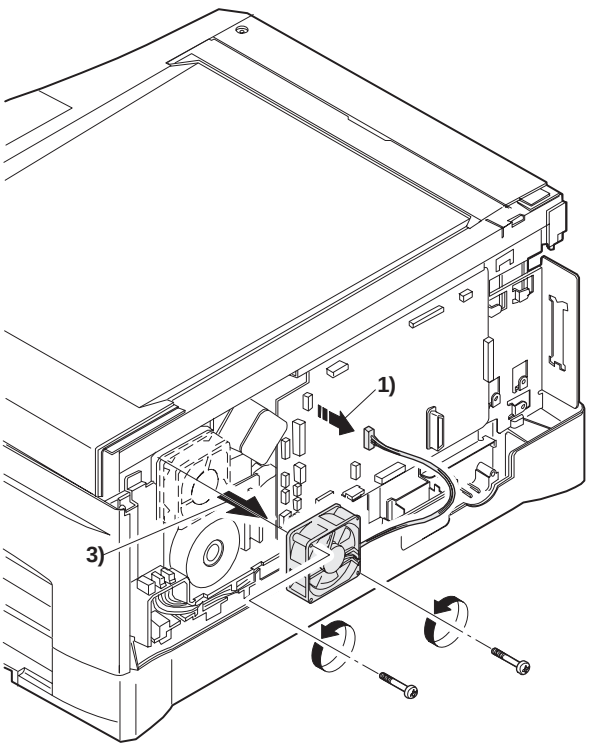
(2) Remove two screws, the harness, and the mirror motor.



(3) Remove two screws and one harness, and remove the main motor.



(4) Remove two screws and one connector, and remove the exhaust fan motor.



C. Assembly procedure

For assembly, reverse the disassembly procedure.

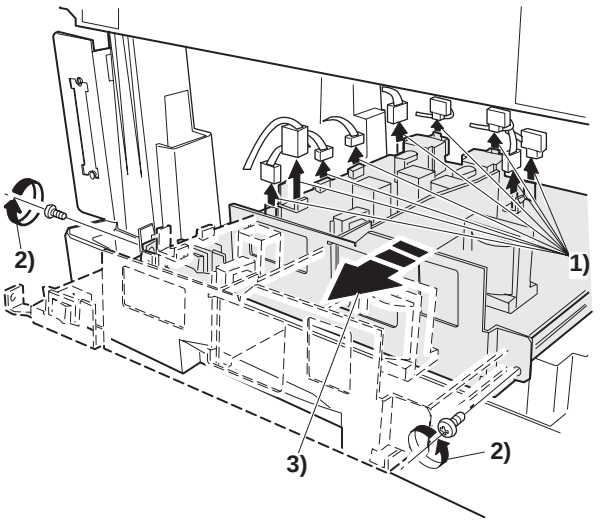
8. Power section

A. List

No.	Part name Ref.	page
1	Power PWB	8-17

B. Disassembly procedure

(1) Remove two screws and one connector, and remove the power PWB.



C. Assembly procedure

For assembly, reverse the disassembly procedure.

[9] Adjustment

1. Optical section

(1) Image distortion adjustment

There are following two types of image distortion.

- Horizontal image distortion
- Vertical image distortion

In this machine, the image distortion is adjusted by changing the parallelism of mirrors (copy lamp unit, No. 2/3 mirror unit).

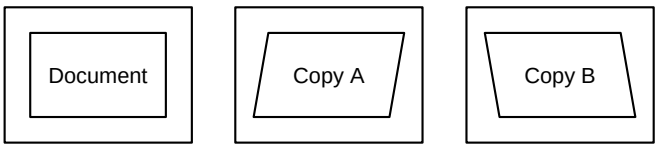
a. Horizontal image distortion adjustment

I. Summary

Parallelism of mirrors can be made by installing the copy lamp unit and No. 2/3 mirror unit to the reference position. However, it must be checked by making a copy, and must be adjusted if necessary.

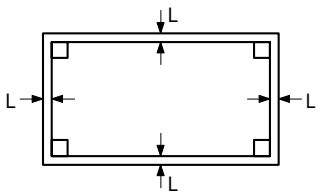
II. Cases when the adjustment is required

1) When the copy lamp unit and No.2/3 mirror unit are disassembled or their part is replaced.
2) When the copy lamp unit and No.2/3 mirror unit drive section is disassembled or its part is replaced.
3) When the copy image is distorted as shown below:



III. Necessary tools

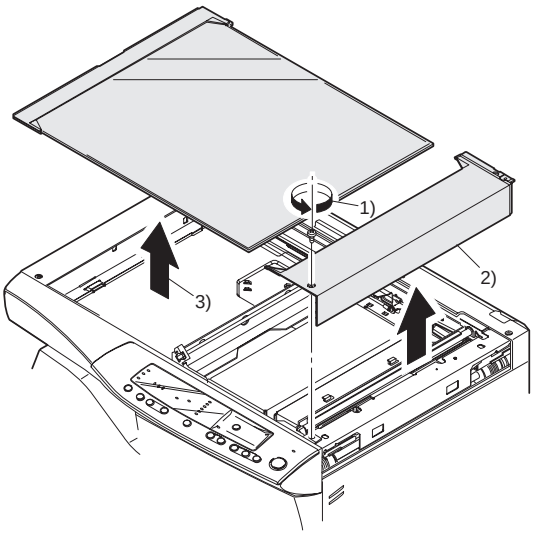
- Screwdriver (+)
- Hex wrench
- Scale
- Test chart for distortion adjustment (Make a chart shown below by yourself.)
  Draw a rectangle on a paper (B4 or 8 1/2″ × 14″) as shown below.
  Be sure to make four right angles.



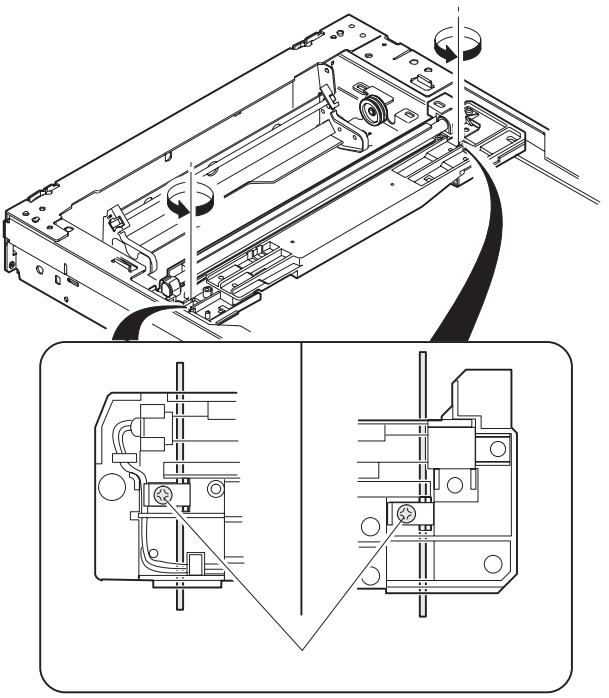
L = 10mm

IV. Adjustment procedure

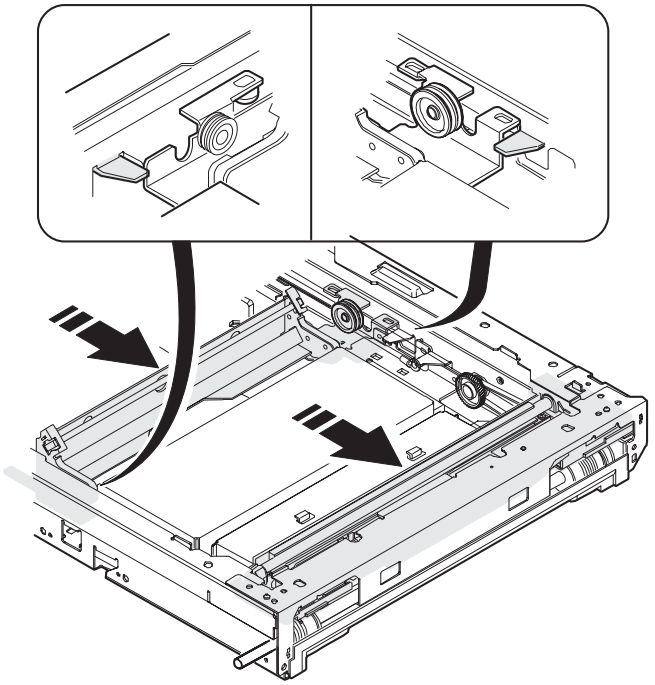
1) Remove the right cabinet (manual paper feed unit), the document reference plate.
2) Remove the document glass.



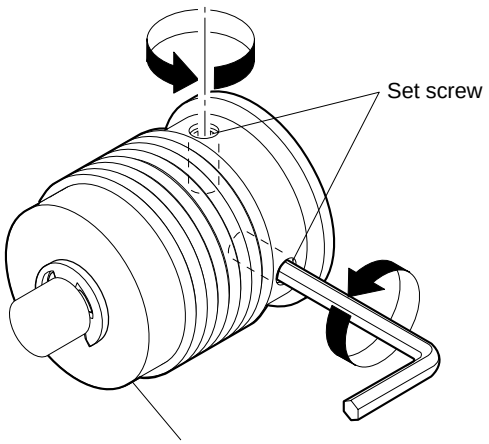
3) Loosen the fixing screw of the copy lamp unit wire.



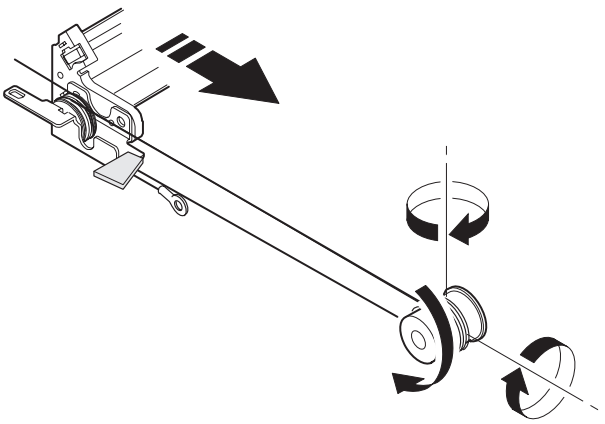
4) Manually turn the copy lamp unit/No.2/3 mirror unit drive gear to bring No.2/3 mirror unit into contact with No.2/3 mirror unit positioning plate. When No.2/3 mirror unit makes contact with No.2/3 mirror unit positioning plate in the rear frame side simultaneously, the mechanical parallelism of No.2/3 mirror unit is proper.
   If one side of No.2/3 mirror unit makes contact with No.2/3 mirror unit positioning plate and the other side does not, the parallelism is improper.
   If the parallelism is improper, perform the procedure of step 5).



5) Loosen the copy lamp unit/No.2/3 mirror unit drive pulley setscrew in the side where No.2/3 mirror unit does not make contact with No.2/3 mirror unit positioning plate.

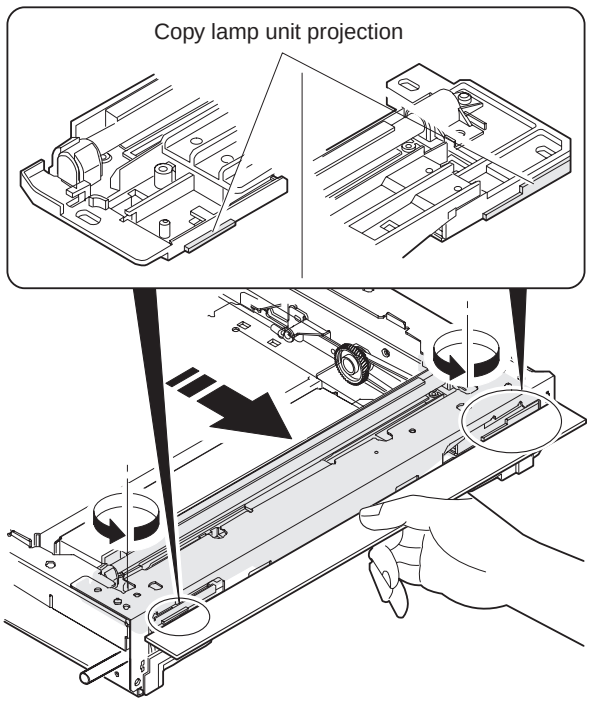


6) Without moving the copy lamp unit/No.2/3 mirror unit drive pulley shaft, manually turn the copy lamp unit/No.2/3 mirror unit drive pulley in the same direction of the loosened setscrew. When it makes contact with No.2/3 mirror unit positioning plate, tighten and fix the setscrew.

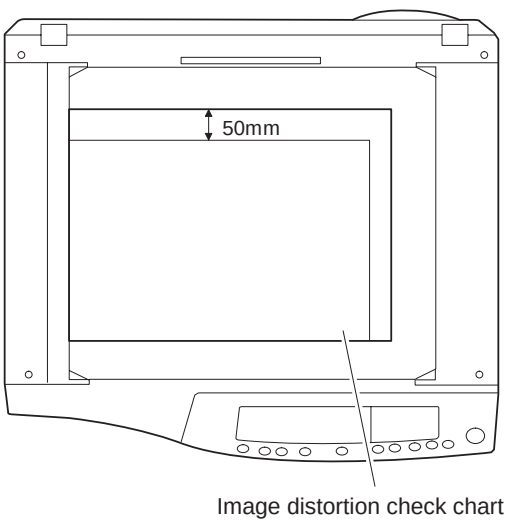


7) Manually turn the copy lamp unit/No.2/3 mirror unit drive gear to bring No.2/3 mirror unit into contact with the positioning plate, and perform the procedure of step 4). Repeat procedures of steps 4) to 7) until the parallelism of No.2/3 mirror unit is properly set.

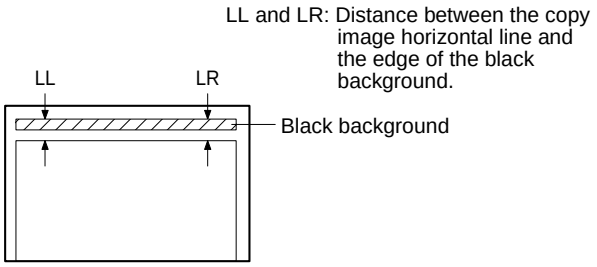
8) With No.2/3 mirror unit positioning plate in contact with No.2/3 mirror unit, bring the copy lamp unit into contact with the right frame and fix the copy lamp unit to the drive wire.
Procedures 1) to 8) are for adjustment of mechanical horizontal parallelism. The copy lamp unit and No.2/3 mirror are fixed to the specified positions and the mechanical horizontal parallelism of No.2/3 mirror is adjusted.
Then the optical horizontal parallelism must be adjusted in the following procedures.



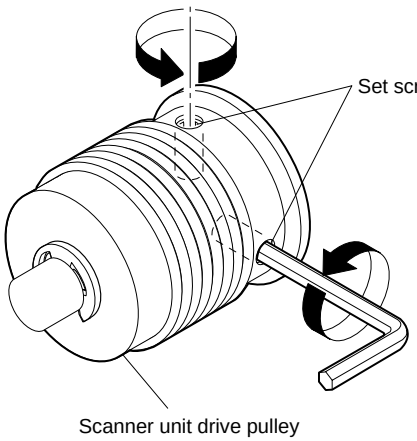
9) Set the image distortion check chart on the document table, and make a reduction copy (75%) on an A4 or 11″ × 8 1/2″ paper with the document cover open.



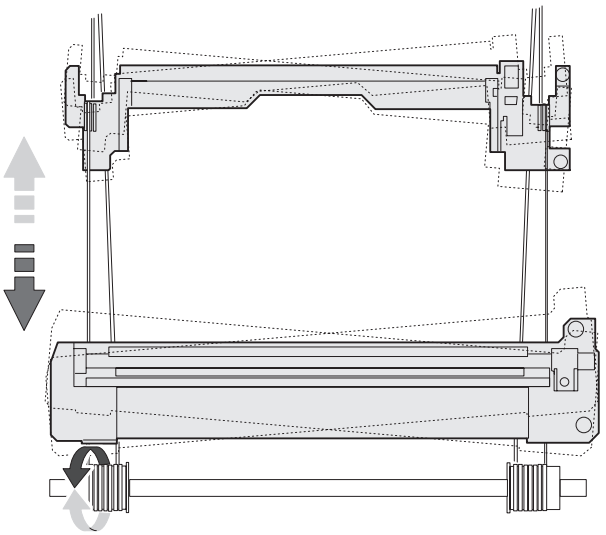
10) Check the horizontal image distortion.
If LL = LR, there is no horizontal distortion



11) If LL is not equal to LR, perform the following procedure.
Loosen the setscrew of the copy lamp unit/No.2/3 mirror unit drive pulley in the front or the rear frame.



12) Without moving the copy lamp unit/No.2/3 mirror unit drive pulley shaft, manually turn the copy lamp unit/No.2/3 mirror unit drive pulley whose setscrew was loosened, and adjust the parallelism of copy lamp unit/No.2/3 mirror unit.



13) Tighten the set screw of the copy lamp unit/No.2/3 mirror unit drive pulley.

14) Check the image distortion in the same manner as step 10).
Repeat procedures 11) to 14) until horizontal image distortion is eliminated.

b. Vertical image distortion adjustment

I. Summary

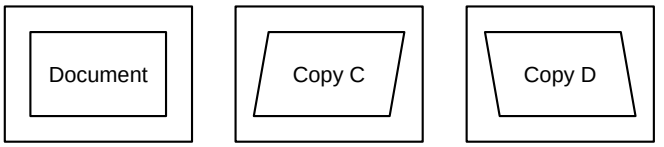
In this adjustment, the left and right balance is adjusted by changing the left and right balance of the No. 2 scanner unit frame on the front frame side.

II. Note

- Horizontal image distortion adjustment

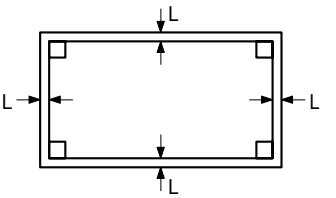
III. Cases when the adjustment is required

1) When the copy lamp unit/No.2/3 mirror unit drive section is disassembled or its part is replaced.
2) When the copy image is distorted as follows:



IV. Necessary tools

- Screwdriver (+)
- Screwdriver (–)
- Scale
- Test chart for distortion adjustment (Make by yourself.)
  Draw a rectangle on A4 or 8 1/2″ × 11″ paper as shown below:
  Be sure to make four right angles.

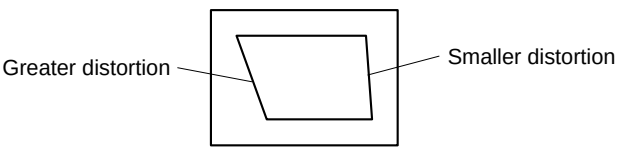


L = 10mm

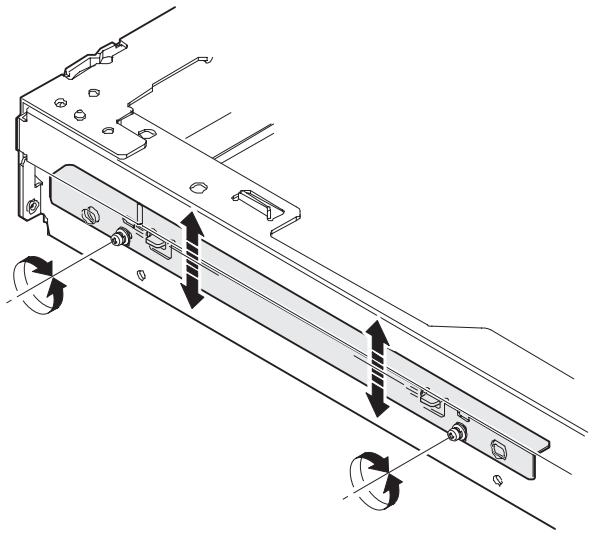
V. Adjustment procedure

1) Set the test chart for image distortion adjustment on the document glass, and make a normal copy on a paper of A4 or 8 1/2″ × 11″.
2) Check image distortion in the right and the left sides.
If the both vertical lines are in parallel with each other, the right-left distortion balance is proper. (However, there may be some distortion.)

If all the four angles are right angles, there in no distortion and the following procedures are not required.

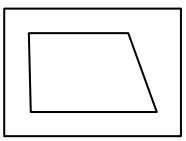


3) If the right-left distortion balance is improper, loosen the fixing screw of No.2/3 mirror unit rail to change and adjust the right-left balance of No.2/3 mirror unit rail.

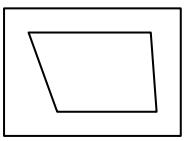


(Note)

If the distortion in the lead edge side (when viewed in the paper transport direction) is greater, change the height of the left rail of No.2/3 mirror unit.
If the distortion in the rear edge side (when viewed in the paper transport direction) is greater, change the height of the right rail of No.2/3 mirror unit.

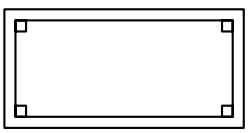


Change the height of the right side of the rail.



Change the height of the left side of the rail.

4) Make a copy to check the vertical image distortion.
If the four angles are right angles, the adjustment is completed.



(2) Copy magnification ratio adjustment

The copy magnification ratio must be adjusted in the main scanning direction and in the sub scanning direction. To adjust, use SIM 48-1.

a. Outline

The main scanning (front/rear) direction magnification ratio adjustment is made automatically or manually.

Automatic adjustment: The width of the reference line marked on the shading correction plate is scanned to perform the main scanning (front/rear) direction magnification ratio adjustment automatically.

Manual adjustment: The adjustment is made by manual key operations. (In either of the automatic and manual adjustments, the zoom data register set value is changed for adjustment.)

The magnification ratio in the sub scanning direction is adjusted by changing the mirror base (scanner) scanning speed.

b. Main scanning direction magnification ratio adjustment

I. Note

Before performing this adjustment, the following adjustments must have been completed. If not, this adjustment cannot be performed properly.

- Image distortion adjustment
- The lens unit must be installed in the reference position.

II. Cases when the adjustment is required

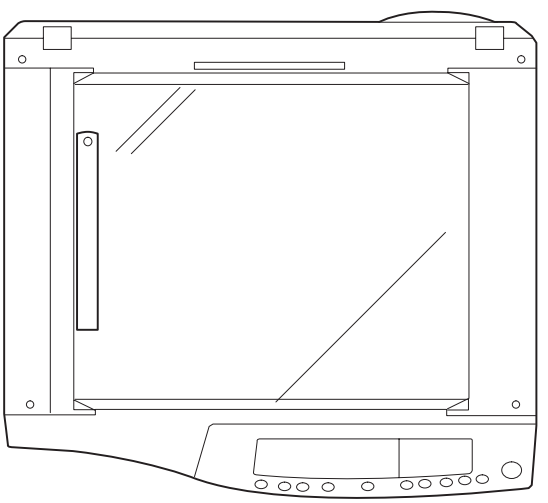
1) When the lens and the mirror unit are disassembled or the part is replaced.
2) When the copy lamp unit/No.2/3 mirror unit drive section is disassembled or the part is replaced.
3) When the main PWB is replaced.
4) When the EEPROM in the main PWB is replaced.
5) When “U2” trouble occurs.
6) When the copy image distortion adjustment is performed.

III. Necessary tools

- Screwdriver (+)
- Scale

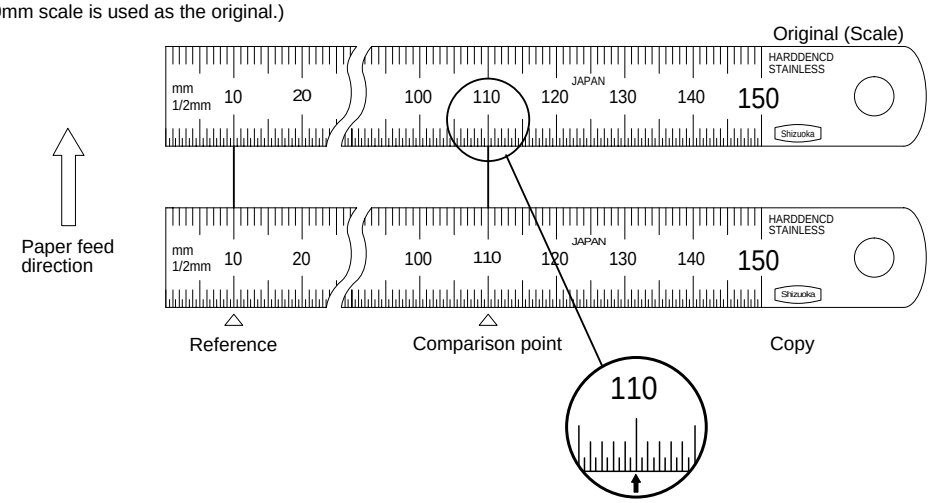
IV. Adjustment procedure

1) Set the scale vertically on the document table. (Use a long scale for precise adjustment.)



2) Set the copy magnification ratio to 100%.
3) Make a copy on A4 or 8½″ × 11″ paper.
4) Measure the length of the copied scale image.

(When a 100mm scale is used as the original.)



5) Calculate the main scanning direction magnification ratio.
Main scanning direction magnification ratio
$= \frac{\text{Copy image dimensions}}{\text{Original dimension}} \times 100\ (\%)$

6) Check that the copy magnification ratio is within the specified range. If it is not within the specified range, perform the following procedures.
7) Execute SIM 48-1 to select the main scanning direction copy magnification ratio adjustment mode.
To select the adjustment mode, use the copy mode select key.

In the case of the automatic adjustment, when the PRINT switch is pressed, the mirror base unit moves to the white plate for shading to scan the width of the reference line, calculating the correction value and displaying and storing this value.
After execution of the automatic adjustment, go out from the simulation mode and make a copy to check the magnification ratio.
If the magnification ratio is not in the specified range (100 ±1.0%), manually adjust as follows.

Adjustment mode	Lighting lamp
Main scanning direction auto copy magnification ratio adjustment	Auto exposure lamp ON
Main scanning direction manual copy magnification ratio adjustment	Manual exposure lamp ON
Sub scanning direction copy magnification ratio adjustment	Photo exposure lamp ON

8) Set the adjustment mode to Manual with the copy mode select key.
9) Enter the new set value of main scanning direction copy magnification ratio with the copy quantity set key, and press the COPY button.
10) Change the set value and repeat the adjustment until the ratio is within the speoified range.
When the set value is changed by 1, the magnification ration is changed by 0.1%.

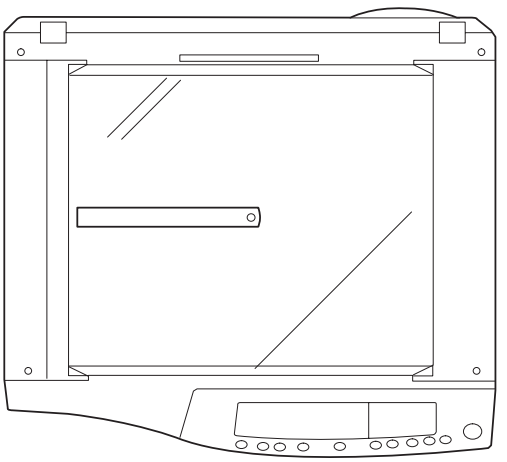
c. Sub scanning direction copy magnification ratio

I. Note
Before performing this adjustment, the following adjustments must have been completed. If not, this adjustment cannot be performed properly.
- Image distortion adjustment
- Must be installed to the lens unit reference position.

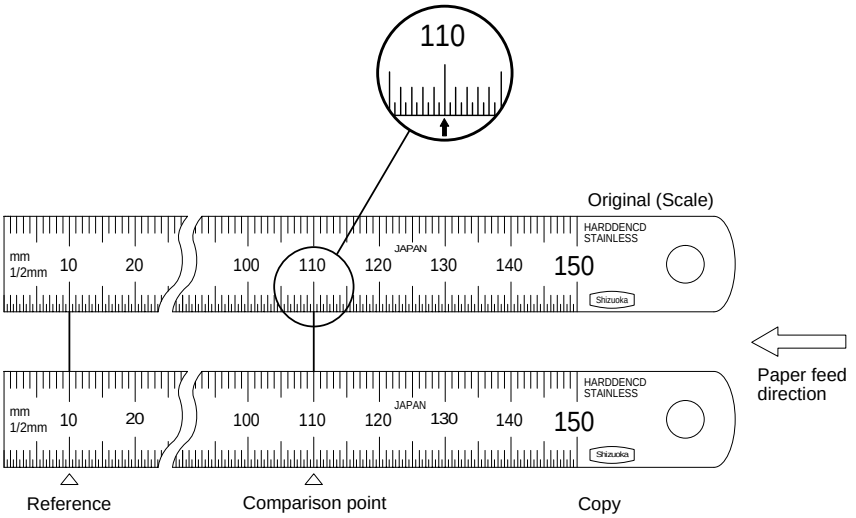
II. Cases when the adjustment is required
1) When the lens and the mirror unit are disassembled or the part is replaced.
2) When the scanner unit drive section is disassembled or the part is replaced.
3) When the main PWB is replaced.
4) When the EEPROM in the main PWB is replaced.
5) When “U2” trouble occurs.
6) When the copy image distortion adjustment is performed.

III. Necessary tools
- Screwdriver (+)
- Scale

IV. Adjustment procedure
1) Set the scale on the document table as shown below. (Use a long scale for precise adjustment.)



2) Set the copy magnification ratio to 100%.
3) Make a copy on A4 or 8½″ × 11″ paper.



4) Measure the length of the copied scale image.

5) Calculate the sub scanning direction copy magnification ratio.
   Sub scanning direction copy magnification ratio
   $= \frac{\text{Copy image dimension}}{\text{Original dimension}} \times 100\ (\%)$

6) Check that the actual copy magnification ratio is within the specified range. (100 ± 1.0%).
   If it is not within the specified range, perform the following procedures.

7) Execute SIM 48-1 to select the sub scanning direction copy magnification ratio adjustment mode.
   To select the adjustment mode, use the copy mode select key. (Photo exposure lamp ON)

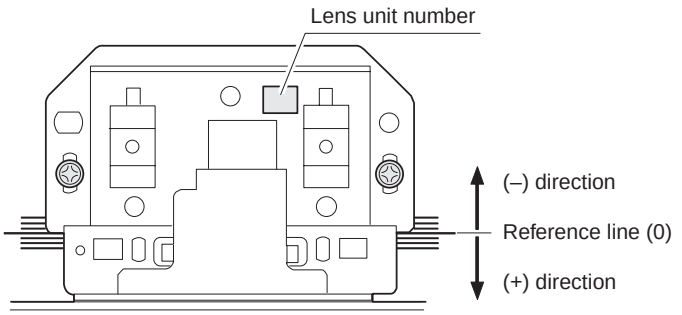
8) Enter the new set value of sub scanning direction copy magnification ratio with the copy quantity set key, and press the COPY button.

Repeat procedures 1) — 8) until the sub scanning direction actual copy magnification ratio in 100% copying is within the specified range.

When the set value is changed by 1, the magnification ration is changed by 0.1%.

(3) Lens unit attachment reference

Attach the lens unit so that the lens unit number on the lens adjustment plate is aligned with the scribe line on the base plate.



Example: Lens unit number –2.8
Attach the lens unit at 2 scales in the paper exit direction from the reference line.

Note: Never touch the other screws than the unit attachment screw.
The lens unit is supplied only in a whole unit.

(4) Image position adjustment

There are following five kinds of image position adjustments, which are made by laser control except for the image scan start position adjustment. For the adjustments, SIM 50 – 01 and SIM 50 – 10 are used.

No.	Adjustment item	Simulation
1	Print start position	50 – 01
2	Image lead edge void amount	50 – 01
3	Image scan start position	50 – 01
4	Image rear edge void amount	50 – 01
5	Center offset	50 – 10

To select the adjustment mode with SIM 50 – 01, use the copy density select key.
The relationship between the adjustment modes and the lighting lamps are as shown in the table below.

Adjustment mode	Lighting lamp
Print start position	Auto (AE) lamp
Image lead edge void amount	Manual (TEXT) lamp
Image scan start position	Photo lamp
Image rear edge void amount	Auto, Manual, Photo lamps

To select the adjustment mode with SIM 50 – 10, use the copy mode select key.

The relationship between the adjustment modes and the lighting
lamps are as shown in the table below.

Machine with the multi manual paper feed unit

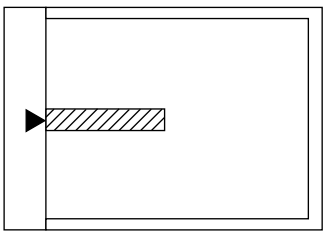
Adjustment mode	Lighting lamp
Print center offset (cassette)	Auto, Cassette
Print center offset (manual feed)	Auto, Manual
Document center offset	Auto, Manual

Machine with the single manual paper feed unit

Print center offset (cassette)	Auto, Cassette
Print center offset (manual feed)	Auto
Document center offset	Auto, Manual

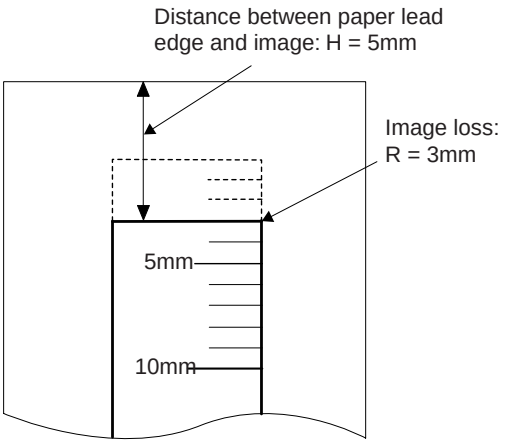
1. Lead edge adjustment

1) Set a scale to the center of the paper lead edge guide as shown below, and cover it with B4 or 8 1/2″ × 14″ paper.



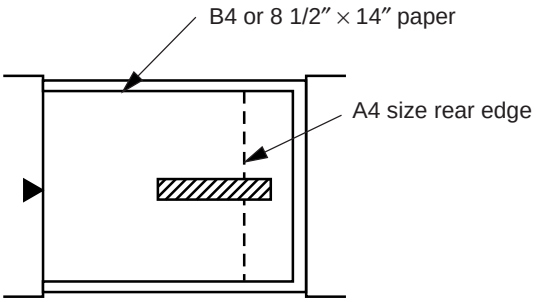
2) Execute SIM 50 – 01
3) Set the print start position (AE lamp ON) (A), the lead edge void amount (TEXT lamp ON) (B), and the scan start position (PHOTO lamp ON) (C) to 0, and make a copy of a scale at 100%.
4) Measure the image loss amount (R mm) of the scale image. Set C = 10 × R (mm). (Example: Set the value of C to 30.) When the value of C is increased by 10, the image loss is decreased by 1mm. (Default: 50)
5) Measure the distance (H mm) between the paper lead edge and the image print start position.
Set A = 10 × H (mm). (Example: Set the value of A to 50.) When the value of A is increased by 10, the image lead edge is shifted to the paper lead edge by 1mm. (Default: 50)
6) Set the lead edge void amount to B = 50 (2.5mm).
When the value of B is increased by 10, the void amount is increased by about 1mm. For 25 or less, however, the void amount becomes zero. (Default: 50)

(Example)

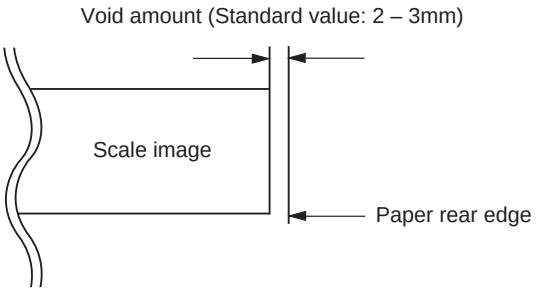


2. Image rear edge void amount adjustment

1) Set a scale to the rear edge section of A4 or 11″ × 8 1/2″ paper size as shown in the figure below, and cover it with B4 or 8 1/2″ × 14″ paper.



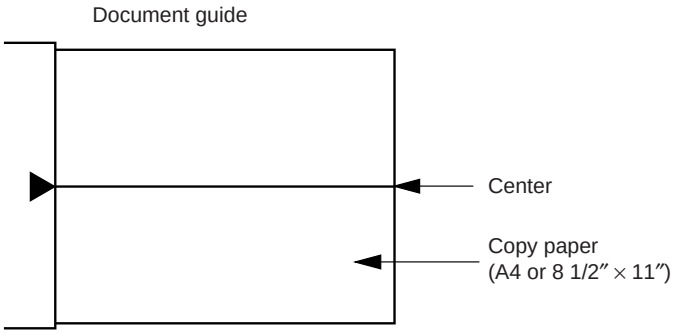
2) Execute SIM 50 – 01 to select the image rear edge void amount adjustment mode.
The set adjustment value is displayed on the copy quantity display.
3) Make a copy and measure the void amount of image rear edge.



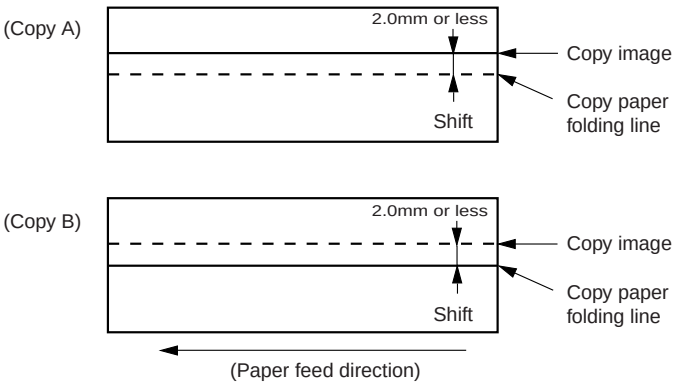
4) If the measurement value is out of the specified range, change the set value and repeat the adjustment procedure. The default value is 50.

3. Center offset adjustment

1) Set the self-made test chart for the center position adjustment so that its center line is aligned with the center mark of the document guide.
   - Test chart for the center position adjustment
     Draw a line at the center of A4 or 8 1/2″ × 11″ paper in the paper transport direction.



2) Execute SIM 50 – 10 to select the print center offset (cassette paper feed) adjustment mode.
   The set adjustment value is displayed on the copy quantity display.
3) Make a copy and check that the copied center line is properly positioned.
   The standard value is 0 ± 2mm from the paper center.



4) If the measured value is out of the specified range, change the set value and repeat the adjustment procedure.
   When the set value is increased by 1, the copy image is shifted by 0.1mm toward the rear frame.
   - For the manual paper feed, change the manual paper feed adjustment mode and perform the similar procedures.
   - Since the document center offset is automatically adjusted by the CCD which scan the reference lines (F/R) on the back of document guide, there is no need to adjust manually.

2. Copy density adjustment

(1) Copy density adjustment timing

The copy density adjustment must be performed in the following cases:

- When maintenance is performed.
- When the developing bias/grid bias voltage is adjusted.
- When the optical section is cleaned.
- When a part in the optical section is replaced.
- When the optical section is disassembled.
- When the OPC drum is replaced.
- When the main control PWB is replaced.
- When the EEPROM on the main control PWB is replaced.
- When the memory trouble (U2) occurs.

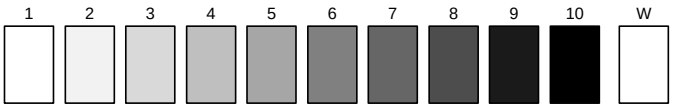
(2) Note for copy density adjustment

1) Arrangement before execution of the copy density adjustment

- Clean the optical section.
- Clean or replace the charger wire.
- Check that the voltage at the high voltage section and the developing bias voltage are in the specified range.

(3) Necessary tool for copy density adjustment

- One of the following test charts:
  UKOG-0162FCZZ, UKOG-0089CSZZ, KODAK GRAY SCALE
- B4 (14″ × 8 1/2″) white paper
- The user program AE setting should be “3.”



Test chart comparison table

UKOG-0162FCZZ DENSITY No.	1	2	3	4	5	6	7	8	9	10	W
UKOG-0089CSZZ DENSITY No.	0.1		0.2		0.3				0.5	1.9	0
KODAK GRAY SCALE		1		2		3		4		19	A

(4) Features of copy density adjustment

For the copy density adjustment, the image data shift function provided in the image process LSI is used.

List of the adjustment modes

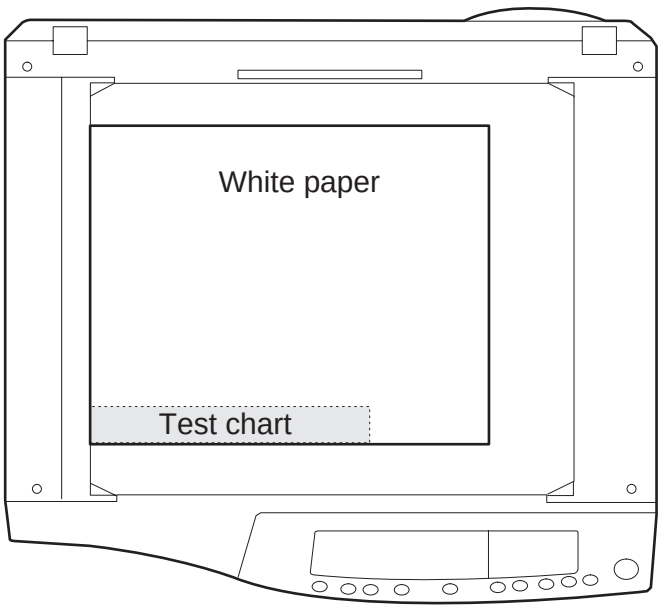
Auto Mode	Brightness 1 step only
Manual Mode	Brightness 5 steps. Adjustment of only the center brightness is made.
Photo Mode	Brightness 5 steps. Adjustment of only the center brightness is made.
Manual T/S mode	Brightness 5 steps. Adjustment of only the center brightness is made.
T/S Auto mode	Brightness 1 step only

(5) Copy density adjustment procedure

Use SIM 46-01 to set the copy density for each copy mode. For selection of modes, use the copy mode select key.

A. Test chart (UKOG-0162FCZZ) setting

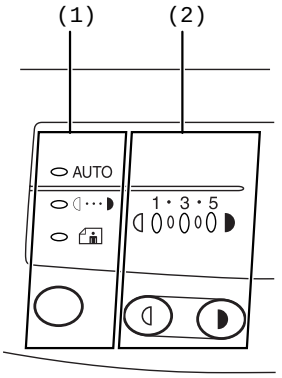
1) Place the test chart so that its edge is aligned with the A4 (Letter) reference line on the document table. Then place a B4 (14″ × 8 1/2″) white paper on the test chart and close the document cover.



B. Perform the adjustment in each mode.

(1) Execute SIM 46-1.

(2) Select the mode to be adjusted with the exposure mode select key. Set the exposure level to 3 for all adjustment. (Except for the auto mode.)

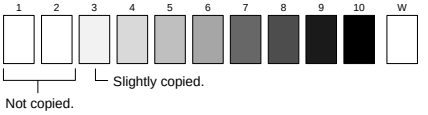
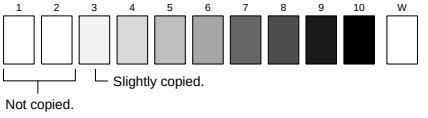


(1) Mode select key/display lamp

(2) Exposure level select key/display lamp

Adjustment mode	Exposure mode display lamp	Exposure level	Sharp gray chart adjustment level
Auto mode	Auto lamp ON	—	"3" is slightly copied.
Manual mode	Manual lamp ON	3	"3" is slightly copied.
Photo mode	Photo lamp ON	3	"3" is slightly copied.
Manual T/S mode	Manual lamp/Photo lamp ON	3	"4" is slightly copied.
Auto T/S mode	Auto lamp/Photo lamp ON	3	"4" is slightly copied.

(3) Make a copy.
Check the adjustment level (shown in the above table) of the exposure test chart (Sharp Gray Scale).

	Sharp Gray Scale adjustment level
Non toner save mode	
Toner save mode	

(When too bright): Decrease the value displayed on the copy quantity display.
(When too dark): Increase the value displayed on the copy quantity display.
* The value can be set in the range of 1 — 99.

3. High voltage adjustment

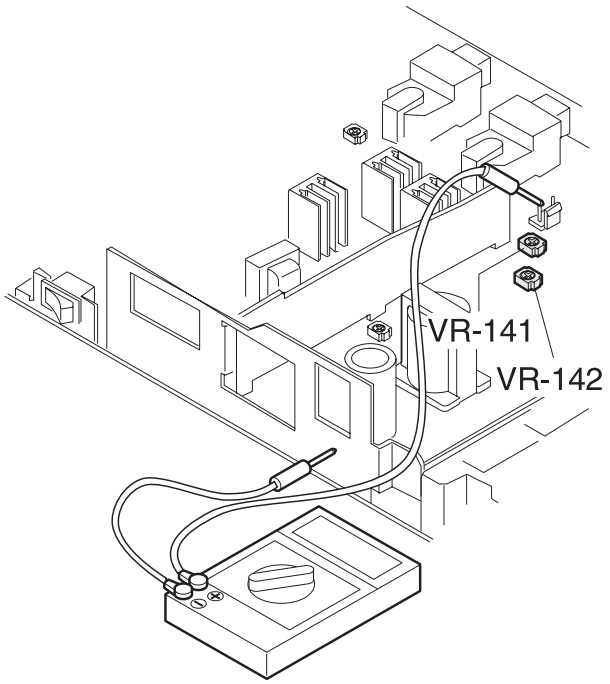
(1) Main charger (Grid bias)

Note:

- Use a digital multi meter with internal resistance of 10MΩ or more measurement.
- After adjusting the grid LOW output, adjust the HIGH output. Do not reverse the sequence.

Procedures

1. Set the digital multi meter range to DC700V.
2. Set the positive side of the test rod to the connector CN11-3 (GRID) of high voltage section of the power PWB and set the negative side to the frame ground (radiating plate).
3. Execute SIM 8-3. (The main charger output is supplied for 30 sec in the grid voltage LOW output mode.)
4. Adjust the control volume (VR-141) so that the output voltage is –400 ±20V.
5. Execute SIM 8-2. (The main charger output is supplied for 30 sec in the grid voltage HIGH output mode.)
6. Adjust the control volume (VR-142) so that the output voltage is 580 ±10V.



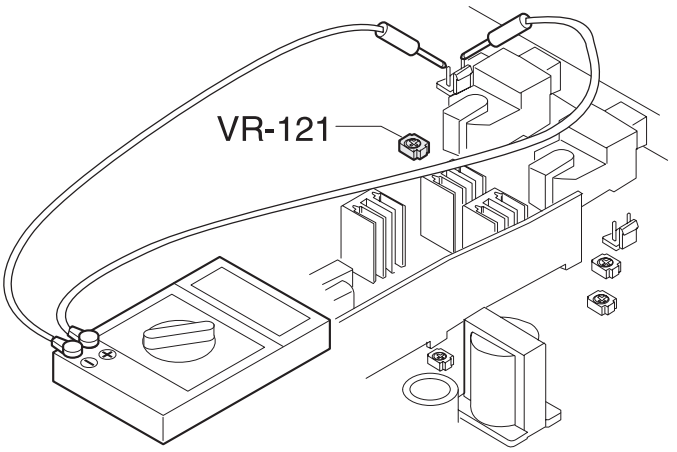
(2) DV bias adjustment

Note:

- A digital multi meter with internal resistance of 1GΩ must be use for correct adjustment.

Procedures

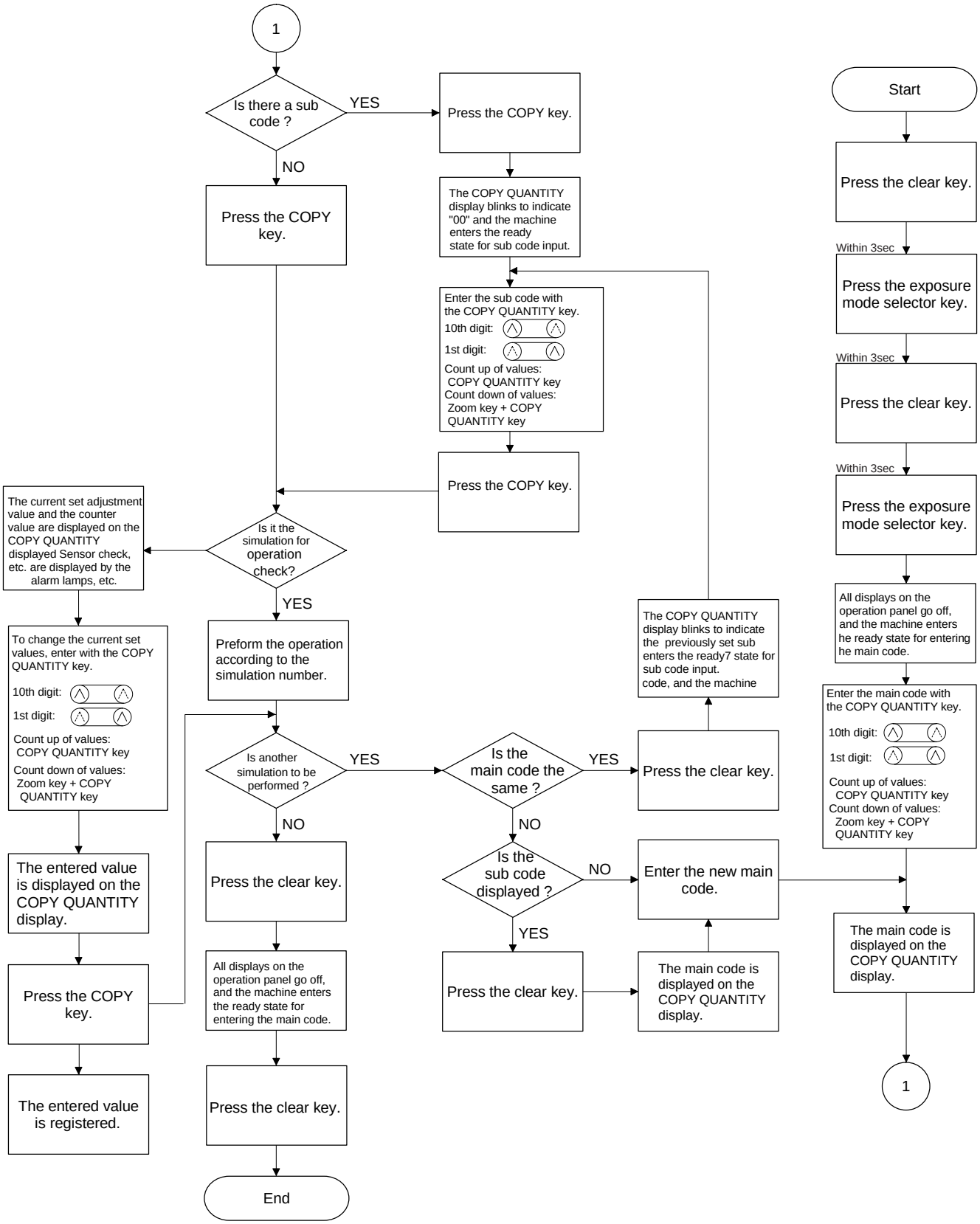
1. Set the digital multi meter range to DC500V.
2. Set the positive side of the test rod to the connector CN-10-1 (DV BIAS) and set the negative side to the connector CN10-2 (FG).
3. Execute SIM 8-1. (The developing bias is outputted for 30 sec.)
4. Adjust the control volume (VR-121) so that the output voltage is –400 ±5V.



[10] SIMULATION , TROUBLE CODES

1.Entering the simulation mode

To enter the serviceman simulation mode, press the keys as follows:
Clear → Density select → Clear → Density select
To cancel the simulation mode, press the clear key.
Flow chart o entering the simulation mode


1
Is there a sub code ?
YES
NO
Press the COPY key.
Press the COPY key.
The COPY QUANTITY display blinks to indicate "00" and the machine enters the ready state for sub code input.
Enter the sub code with the COPY QUANTITY key.
10th digit:
1st digit:
Count up of values: COPY QUANTITY key
Count down of values: Zoom key + COPY QUANTITY key
Press the COPY key.
The current set adjustment value and the counter value are displayed on the COPY QUANTITY displayed Sensor check, etc. are displayed by the alarm lamps, etc.
Is it the simulation for operation check?
YES
To change the current set values, enter with the COPY QUANTITY key.
10th digit:
1st digit:
Count up of values: COPY QUANTITY key
Count down of values: Zoom key + COPY QUANTITY key
Preform the operation according to the simulation number.
The entered value is displayed on the COPY QUANTITY display.
Press the COPY key.
The entered value is registered.
Is another simulation to be performed ?
YES
NO
Press the clear key.
All displays on the operation panel go off, and the machine enters the ready state for entering the main code.
Press the clear key.
End
Is the main code the same ?
YES
NO
Press the clear key.
The COPY QUANTITY display blinks to indicate the previously set sub enters the ready7 state for sub code input.
code, and the machine
Is the sub code displayed ?
NO
YES
Enter the new main code.
Press the clear key.
The main code is displayed on the COPY QUANTITY display.
Start
Press the clear key.
Within 3sec
Press the exposure mode selector key.
Within 3sec
Press the clear key.
Within 3sec
Press the exposure mode selector key.
All displays on the operation panel go off, and the machine enters he ready state for entering he main code.
Enter the main code with the COPY QUANTITY key.
10th digit:
1st digit:
Count up of values: COPY QUANTITY key
Count down of values: Zoom key + COPY QUANTITY key
The main code is displayed on the COPY QUANTITY display.
1

2. List of simulation

Main code	Sub code	Content
1	1	Scanner unit operation check
5	1	Operation panel display lamps operation check
	2	Fusing lamp and cooling fan operation check
	3	Copy lamp operation check
6	1	Paper feed solenoids (CPFS1, CPFS2, MPFS) operation check
	2	Resist solenoid (RRS) operation check
7	1	Warm-up time display and aging with JAM
	6	Intermittent aging
8	1	Developing bias check
	2	Main charger (Grid high output mode) check
	3	Grid voltage (Grid low output mode) check
	6	Transfer charger check
10	-	Toner motor operation check
14	-	Cancel of trouble other than U2
16	-	Cancel of U2 trouble
22	5	Total counter value display
	12	Drum counter value display
	14	P-ROM version display
	21	Scanner counter value display
24	7	Drum counter clear
	13	Scanner counter clear
25	1	Main motor operation check
	10	Polygon motor operation check
26	1	Manual paper feed section setting
	6	Destination setting
	7	Machine conditions check
	20	Rear edge void setting
	30	CE mark application control ON/OFF setting
	38	Drum life over stop cancel
	39	Memory capacity setting
	40	Polygon motor OFF time setting
	42	Transfer ON timing control (Setting the time to transfer ON)
30	1	Paper sensor status display
43	1	Fusing temperature setting
	4	Multi copy fusing temperature setting
46	1	Copy density adjustment
48	1	Front/rear scanning direction magnification ratio adjustment
50	1	Lead edge position and paper lead edge/rear edge void adjustment
	10	Center offset adjustment
51	2	Resist amount adjustment
61	3	Polygon motor (HSYNC output) check
63	1	Shading check
64	1	Self print by engine only (1 by 2 mode)

(*)In the simulation mode (except for the aging mode), when the 1-digit up key is pressed while pressing the % key, it serves as the 1-digit down key. When 10-digit up key is pressed while pressing the % key, it serves as the 10-digit down key.

3. Contents of simulations

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th></tr>
<tr><td>1</td><td>1</td><td>Scanner unit operation check
(Operation/Procedure)
1. When this simulation is executed, the mirror home position is detected.
<table><tr><th>Sensor name</th><th>display lamp</th></tr><tr><td>Mirror home position sensor</td><td>OPC drum cartridge replacement lamp</td></tr></table>2, When the _START key is pressed, scanning is executed at the speed corresponding to the currently set copy magnification ratio.
The copy magnification ratio can be arbitrarily set with the magnification ratio select key/zoom key.</td></tr>
<tr><td>5</td><td>1</td><td>Operation panel display lamps operation check
(Operation/Procedure)
When the START key is pressed, the LED on the operation panel is lighted for 5 sec.</td></tr>
<tr><td></td><td>2</td><td>Fusing lamp and cooling fan operation check
(Operation/Procedure)
When the START key is pressed, the fusing lamp repeats ON (500ms) and OFF (500msec) 5 times.
During this period, the cooling fan rotates in the high speed mode. After completion of the operation, the cooling fan rotates in the low speed mode.</td></tr>
<tr><td></td><td>3</td><td>Copy lamp operation check
(Operation/Procedure)
When the START key is pressed, the copy lamp is lighted for 5 sec.</td></tr>
<tr><td>6</td><td>1</td><td>Paper feed solenoids (CPFS1, CPFS2, MPFS) operation check
(Operation/Procedure)
When the START key is pressed, the paper feed solenoid selected by the tray select key repeats ON (500ms) and OFF (500ms) 20 times.</td></tr>
<tr><td></td><td>2</td><td>Resist solenoid (RRS) operation check
(Operation/Procedure)
When the START key is pressed, the resist solenoid (RRS) repeats ON (500ms) and OFF (500ms) 20 times.</td></tr>
<tr><td>7</td><td>1</td><td>Warm-up time display and aging with JAM
(Operation/Procedure)
1. When the simulation is executed, warming up is started.
2. Warm-up time is counted and displayed every second on the copy quantity display.
3. After completion of warm-up, the time count is stopped and the ready lamp is lighted.
4. Press the clear key to clear the warm-up time display, set the copy quantity, and press the START key, and the machine will copy the set quantity repeatedly.</td></tr>
<tr><td></td><td>6</td><td>Intermittent aging
(Operation/Procedure)
1. When the simulation is executed, warming up is started.
2. After completion of warm-up, the ready lamp is lighted.
3. Set the copy quantity and press the START key, and the machine will copy the set quantity repeatedly.
4. After 3 sec of the interval time from completion of copying the set quantity, the machine will resume copying.
5. The above operation 4 is repeated.</td></tr>
</table>

Main code	Sub code	Contents
8	1	Developing bias check (Operation/Procedure) When the START key is pressed, the developing bias is outputted for 30 sec.
	2	Main charger (Grid high output mode) check (Operation/Procedure) When the START key is pressed, the main charger output is supplied for 30 sec in the grid voltage HIGH mode.
	3	Grid voltage (Grid low output mode) check (Operation/Procedure) When the START key is pressed, the main charger output is supplied for 30 sec in the grid voltage LOW mode.
	6	Transfer charger check (Operation/Procedure) When the START key is pressed, the transfer charger output is supplied for 30 sec.
10	-	Toner motor operation check (Operation/Procedure) When the START key is pressed, the toner motor output is supplied for 30 sec.
14	-	Cancel of trouble other than U2 (Operation/Procedure) After canceling the trouble, the simulation is also automatically canceled.
16	-	Cancel of U2 trouble (Operation/Procedure) 1. When the START key is pressed, the EEPROM total counter check sum is rewritten and the trouble is canceled. 2. After canceling the trouble, the simulation is also automatically canceled.
22	5	Total counter value display (Operation/Procedure) The total counter value is divided into two 3-digit sections and displayed on the copy quantity display repeatedly. Example of display In the case of 12345 012 → Blank → 345 → Blank → 012 0.7s 0.3s 0.7s 1.0s 0.3s
	12	Drum counter value display (Operation/Procedure) The installed drum counter value is divided into two 3-digit sections and displayed on the copy quantity display repeatedly. * The display method is same as the total counter value display.
	14	P-ROM version display (Operation/Procedure) The P-ROM version is displayed in 3 digits on the copy quantity display.
	21	Scanner counter value display The installed scanner counter value is divided into two 3-digit sections and displayed on the copy quantity display repeatedly. * The display method is same as the total counter value display.

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th></tr>
<tr><td>24</td><td>7</td><td>Drum counter clear
(Operation/Procedure)
When the START key is pressed, the drum counter value is reset to 0.</td></tr>
<tr><td></td><td>13</td><td>Scanner counter clear
(Operation/Procedure)
When the START key is pressed, the scanner counter value is reset to 0.</td></tr>
<tr><td>25</td><td>1</td><td>Main motor operation check
(Operation/Procedure)
When the START key is pressed, the main motor is rotated for 30 sec.
To save toner consumption, the different operations are executed depending on installation of the developing unit.
. When the developing unit is installed, the developing bias, the main charger, and the grid are also outputted.
. When the developing unit is not installed, only the motor is rotated.
* Do not turn on the door open/close switch forcibly to execute this simulation.</td></tr>
<tr><td></td><td>10</td><td>Polygon motor operation check
(Operation/Procedure)
When the START key is pressed, the polygon motor is operated for 30sec.</td></tr>
<tr><td>26</td><td>1</td><td>Manual paper feed section setting
(Operation/Procedure)
1. When this simulation is executed, the currently set bypass code number is displayed.
2. Enter the code number corresponding to the bypass and press the START key, and the setting will be changed.
<table>
<tr><th>Code number</th><th>Bypass</th></tr>
<tr><td>0</td><td>Single bypass</td></tr>
<tr><td>1</td><td>Multi bypass</td></tr>
</table></td></tr>
<tr><td></td><td>6</td><td>Destination setting
(Operation/Procedure)
1. When this simulation is executed, the currently set destination code number is displayed.
2. Enter the code number corresponding to the destination and press the START key, and the setting will be changed.
<table>
<tr><th>Code number</th><th>Destination</th></tr>
<tr><td>0</td><td>Inch series</td></tr>
<tr><td>1</td><td>EX AB series</td></tr>
<tr><td>2</td><td>Japan AB series</td></tr>
</table></td></tr>
<tr><td></td><td>7</td><td>Machine conditions check
(Operation/Procedure)
When this simulation is executed, the current machine setting is displayed.
<table>
<tr><th>CPM</th><th>Copy quantity display</th></tr>
<tr><td>10cpm</td><td>10</td></tr>
<tr><td>12cpm</td><td>12</td></tr>
<tr><td>15cpm</td><td>15</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Main code</th><th>Main code</th><th>Contents</th></tr>
<tr><td>26</td><td>20</td><td>Rear edge void setting
(Operation/Procedure)
1. When this simulation is executed, the currently set code number of rear edge void setting is displayed.
2. Enter the code number of rear edge void setting and press the START key, and the setting will be changed.
<table>
<tr><th>Code number</th><th>Rear edge void setting</th></tr>
<tr><td>0</td><td>Rear edge void allowed</td></tr>
<tr><td>1</td><td>Rear edge void not allowed</td></tr>
</table></td></tr>
<tr><td></td><td>30</td><td>CE mark application control ON/OFF setting
(Operation/Procedure)
1. When this simulation is executed, the currently set code number of CE mark application is displayed.
2. Enter the code number of CE mark application and press the START key, and the setting will be changed.
<table>
<tr><th>Code number</th><th>CE mark application setting</th></tr>
<tr><td>0</td><td>CE mark application control OFF</td></tr>
<tr><td>1</td><td>CE mark application control ON</td></tr>
</table></td></tr>
<tr><td></td><td>38</td><td>Drum life over stop cancel
(Operation/Procedure)
1. When this simulation is executed, the currently set code number is displayed.
2. Enter the code number and press the START key, and the setting will be changed.
<table>
<tr><th>Code number</th><th>Setting</th></tr>
<tr><td>0</td><td>Stop at drum life over</td></tr>
<tr><td>1</td><td>Stop cancel at drum life over</td></tr>
</table></td></tr>
<tr><td></td><td>39</td><td>Memory capacity setting
(Operation/Procedure)
1. When this simulation is executed, the currently set code number is displayed.
2. Enter the code number and press the START key, and the setting will be changed.
<table>
<tr><th>Code number</th><th>Setting</th></tr>
<tr><td>0</td><td>No memory</td></tr>
<tr><td>1</td><td>4Mbyte</td></tr>
<tr><td>2</td><td>6Mbyte</td></tr>
</table></td></tr>
<tr><td></td><td>40</td><td>Polygon motor OFF time setting
(Operation/Procedure)
1. When this simulation is executed, the currently set code number is displayed.
2. Enter the code number and press the START key, and the setting will be changed.
<table>
<tr><th>Code number</th><th>Setting</th></tr>
<tr><td>0</td><td>0 sec</td></tr>
<tr><td>1</td><td>30 sec</td></tr>
<tr><td>2</td><td>60 sec</td></tr>
<tr><td>3</td><td>90 sec</td></tr>
</table></td></tr>
<tr><td></td><td>42</td><td>Transfer ON timing control (Setting the time to transfer ON)
(Operation / Procedure)
1.When this simulation is executed, the currently set code number is displayed.
2.Enter the code number and press the START key, and the setting will be changed. (For any number different from the following ones, the default time is automatically set.)
<table>
<tr><th>Code number</th><th>Setting</th></tr>
<tr><td>0</td><td>Default (330 msec)</td></tr>
<tr><td>1</td><td>-40msec</td></tr>
<tr><td>2</td><td>-30msec</td></tr>
<tr><td>3</td><td>-20msec</td></tr>
<tr><td>4</td><td>-10msec</td></tr>
<tr><td>5</td><td>Default (330 msec)</td></tr>
<tr><td>6</td><td>+10msec</td></tr>
<tr><td>7</td><td>+20msec</td></tr>
<tr><td>8</td><td>+30msec</td></tr>
<tr><td>9</td><td>+40msec</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Main code</th><th>Main code</th><th>Main code</th></tr>
<tr><td>30</td><td>1</td><td>Paper sensor status display
(Operation/Procedure)
The paper sensor status is displayed on the copy quantity display.
<table>
<tr><th>Sensor name</th><th>Display lamp</th></tr>
<tr><td>Resist front paper sensor(PPD1)</td><td>Developing lamp replacement lamp</td></tr>
<tr><td>Fusing section paper sensor (PPD2)</td><td>JAM lamp</td></tr>
<tr><td>Paper exit sensor (PDD)</td><td>OPC drum cartridge replacement lamp</td></tr>
<tr><td>New drum cartridge sensor (PUIS)</td><td>Zoom lamp</td></tr>
<tr><td>2nd CS paper sensor (PPD3)</td><td>2nd cassette lamp</td></tr>
<tr><td>Single manual feed paper detection(MFD)</td><td>AE lamp</td></tr>
</table></td></tr>
<tr><td rowspan="2">43</td><td>1</td><td>Fusing temperature setting
(Operation/Procedure)
1. When this simulation is executed, the currently set code number is displayed.
2. Enter the code number and press the START key, and the setting will be changed.
<table>
<tr><th>Code number</th><th>Set temperature (°C)</th></tr>
<tr><td>0</td><td>175</td></tr>
<tr><td>1</td><td>180</td></tr>
<tr><td>2</td><td>185</td></tr>
<tr><td>3</td><td>190 (*Default)</td></tr>
<tr><td>4</td><td>195</td></tr>
<tr><td>5</td><td>200</td></tr>
</table></td></tr>
<tr><td>4</td><td>Multi copy fusing temperature setting
(Operation/Procedure)
1. When this simulation is executed, the currently set code number is displayed.
2. Enter the code number and press the START key, and the setting will be changed.
<table>
<tr><th>Code number</th><th>Set temperature (°C)</th></tr>
<tr><td>0</td><td>155</td></tr>
<tr><td>1</td><td>160</td></tr>
<tr><td>2</td><td>165 (*Default)</td></tr>
<tr><td>3</td><td>170</td></tr>
<tr><td>4</td><td>175</td></tr>
<tr><td>5</td><td>180</td></tr>
</table>
* To suppress temperature rise in the machine during multi copying,the fusing temperature is automatically changed from the level set with SIM 43-1 to the level set with this simulation after 20 sheets of multi copy.</td></tr>
<tr><td>46</td><td>1</td><td>Copy density adjustment
(Outline)
Used to adjust the copy density in each copy mode.(The copy density can be set by changing the set value of ASIC GAMMA ADJUST register.)
Setting in each copy mode is performed at exposure level 3. When the copy density (exposure) is adjusted arbitrarily, the max, and min. exposure levels are automatically calculated and set. (The change amounts (gradient, change amount) at level 1 - 5 are predetermined.)
(Operation/Procedure)
1. When this simulation is executed, warming up and shading are performed and the current set value is displayed in two digits.
2. Press the copy mode select key to select each setting mode and setting display.
* The copy mode setting is indicated with the following lamps as shown below.
3. Change the setting with the value up-down key and press the START key, and a copy will be made with the entered set value.
4. Press the clear key to store the set value and exit the simulation.
<table>
<tr><th>Copy mode</th><th>Display lamp</th></tr>
<tr><td>AE mode</td><td>AE mode lamp</td></tr>
<tr><td>TEXT mode</td><td>TEXT mode lamp</td></tr>
<tr><td>PHOTO mode</td><td>PHOTO mode lamp</td></tr>
<tr><td>TS mode (TEXT)</td><td>TEXT mode lamp & PHOTO mode lamp</td></tr>
<tr><td>TS mode (AE)</td><td>AE mode lamp & PHOTO mode lamp</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Main code</th><th>Main code</th><th>Main code</th></tr>
<tr><td>46</td><td>1</td><td>
Relationship between the displayed values and the GAMMA ADJUST register
<table>
<tr><td></td><td>Exp1</td><td>Exp2</td><td>Exp3</td><td>Exp4</td><td>Exp5</td></tr>
<tr><td>AE</td><td>-24</td><td>-12</td><td>0</td><td>+12</td><td>+24</td></tr>
<tr><td>TEXT</td><td>-24</td><td>-12</td><td>0</td><td>+12</td><td>+24</td></tr>
<tr><td>PHOTO</td><td>-24</td><td>-12</td><td>0</td><td>+12</td><td>+24</td></tr>
<tr><td>T/S</td><td>-24</td><td>-12</td><td>0</td><td>+12</td><td>+24</td></tr>
</table>
The value displayed after execution of this simulation can be set in the range of 0 - 99 with 50 as the center value.
When the text mode set value is Gat3, for example, the GAMMA ADJUST register value set at Exp1 is:
Text Exp1 = Gat3 - 50 - 24
When 40 is set to Gat3, Text Exp1 = 40 - 50 - 24 = -34
Then set the GAMMA ADJUST register set value to -34.
Perform the same procedure for each mode and each Exp.
* The above table may subject to change.
* For the gradient, there is a similar table, though not specified here. The value set with SIM 46, however, is not reflected.
* The AE mode Exp selection is not specified, but corresponds to the grades for AE exposure selection in the former models.
</td></tr>
<tr><td>48</td><td>1</td><td>
Front/rear scanning direction magnification ratio adjustment
(Outline)
(1) Front/rear scanning direction magnification ratio auto correction: (Performed by changing the set value of ZOOM DATA register for asic.) The width of the reference line marked on the shading correction plate is scanned to perform the front/rear direction magnification ratio adjustment automatically. (Performed by changing the set value of ZOOM DATA register for ASIC.)
(2) Front/rear scanning direction magnification ratio manual correction: Used to set the front/rear (main scanning) direction magnification ratio by key operations. (Performed by changing the set value of ZOOM DATA register for ASIC.)
(3) Scanning direction magnification ratio correction: The scanning direction magnification ratio in the OC mode is set by key operations. (Performed by changing the scanning speed.)
(4) SPF mode scanning direction magnification ratio correction: The scanning direction magnification ratio in the OC mode is set by key operations. (Performed by changing the scanning speed.)
(Operation/Procedure)
1. When this simulation is executed, the current set value is displayed in two digits. (Center value: 50)
2. When the copy mode select key is pressed, the setting mode and the setting display are changed sequentially.
* The selected adjustment mode is indicated by the lamps as follows:
3. In the front/rear scanning direction adjustment, when the START key is pressed, the mirror base unit moves to the white plate for shading and the width of the reference line is read and the correction value is calculated and displayed and the value is stored.
In the case of the manual adjustment, enter the adjustment value with the 10-key and press the START key. Then the entered value is stored and a copy is made. (An increase of 1 in the set value corresponds to an increase of 1&.)
4. Press the clear key to store the set value and exit the simulation.
<table>
<tr><td>Adjustment mode</td><td>Lamps ON</td></tr>
<tr><td>Front/rear direction magnification ratio auto correction</td><td>AE lamp</td></tr>
<tr><td>Front/rear direction magnification ratio manual correction</td><td>TEXT lamp</td></tr>
<tr><td>Scanning direction magnification ratio correction</td><td>PHOTO lamp</td></tr>
<tr><td>SPF mode scanning direction magnification ratio correction</td><td>AE, TEXT, PHOTO lamps</td></tr>
</table>
In the front-rear direction magnification ratio correction:
(1) The result of calculation of the scan correction value is +-5% or less, "- -" is displayed.
(Cause) The white plate reference position error or the lens unit installing error
(2) In case of a scanning error of the reference line, the JAM lamp is turned on.
(Cause) CCD error or no white plate
*) If the automatic correction of magnification ratio does not work properly, adjust and correct manually.
</td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th></tr>
<tr><td>50</td><td>1</td><td>
Lead edge position and paper lead edge/rear edge void adjustment
Used to adjust the copy image position on copy paper and the lead edge/rear edge void amounts. Performed by adjusting the scanning start position and print start position (resist roller ON timing) in 100%.
(Operation/Procedure)
1. When this simulation is executed, the current set value is displayed in two digits. (Center value: 50)
2. When the copy mode select key is pressed, the setting mode and the setting display are changed sequentially.
* The selected adjustment mode is indicated by the lamps as follows.
3. Enter the adjustment value with the 10-key and press the START key. Then the set value is stored and copy is made. (An increase of 1 in the set value corresponds to 0.1mm shift.)
4. Press the clear key to store the set value and exit the simulation.

<table>
<tr><th>Adjustment mode</th><th>Lamps ON</th></tr>
<tr><td>Print start position</td><td>AE lamp</td></tr>
<tr><td>Image lead edge void amount</td><td>TEXT lamp</td></tr>
<tr><td>Image scanning start position (Scanner)</td><td>PHOTO lamp</td></tr>
<tr><td>Image rear edge void amount</td><td>AE, TEXT, PHOTO lamps</td></tr>
</table>
</td></tr>
<tr><td></td><td>10</td><td>
Center offset adjustment
(Outline)
Used to adjust the copy image position on copy paper and the center offset position in scanning an original. Performed by changing the set values of the SCAN LEFT MARGIN register and the PRINT LEFT MARGIN register of ASIC.
(Operation/Procedure)
1. When this simulation is executed, the current set value is displayed.
2. In a machine with the multi paper feed unit installed, press the copy mode select key, and each setting mode and display are changed sequentially.
In a machine with the single paper feed unit installed, press the copy mode select key, and each setting mode and display are changed sequentially.
* The selected adjustment mode is indicated by the lamps as follows:
3. Enter the adjustment value with the 10-key and press the SORT key. Then the set value is stored and a copy is made. (An increase of 1 in the set value corresponds to 0.1mm shift.)
4. Press the clear key to store the set value and exit the simulation.

* Machine with the multi manual paper feed unit installed
<table>
<tr><th>Adjustment mode</th><th>Lamps ON</th></tr>
<tr><td>Print center offset (main cassette paper feed)</td><td>AE, main cassette lamp</td></tr>
<tr><td>Print center offset (2nd cassette paper feed)</td><td>AE, 2nd cassette lamp</td></tr>
<tr><td>Print center offset (Manual paper feed)</td><td>AE, manual feed lamp</td></tr>
<tr><td>OC/original center offset</td><td>AE, TEXT lamp</td></tr>
<tr><td>SPF/Original center offset</td><td>AE, TEXT, PHOTO lamp</td></tr>
</table>
* Machine with the single manual paper feed unit installed
<table>
<tr><th>Adjustment mode</th><th>Lamps ON</th></tr>
<tr><td>Print center offset (main cassette paper feed)</td><td>AE, main cassette lamp</td></tr>
<tr><td>Print center offset (Manual paper feed)</td><td>AE (Blink)</td></tr>
<tr><td>OC/original center offset</td><td>AE, TEXT lamp</td></tr>
<tr><td>SPF/Original center offset</td><td>AE, TEXT, PHOTO lamp</td></tr>
</table>
</td></tr>
<tr><td>51</td><td>2</td><td>
Resist amount adjustment
(Outline)
Used to adjust the contact pressure of paper onto the copier resist roller and the SPF resist roller.
(Operation/Procedure)
1. When this simulation is executed, the currently set value is displayed.
2. In a machine with the multi paper feed unit installed, press the copy mode select key, and each setting mode and display are changed sequentially.
In a machine with the single paper feed unit installed, press the copy mode select key, and each setting mode and display are changed sequentially.
* The selected adjustment mode is indicated by the lamps as follows:
3. Enter the adjustment value with the 10-key and press the SORT key. Then the set value is stored and a copy is made.
4. Press the clear key to store the set value and exit the simulation.
</td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th></tr>
<tr><td>51</td><td>2</td><td>* Machine with the multi manual paper feed unit installed
<table>
<tr><th>Adjustment mode</th><th>Lamps ON</th></tr>
<tr><td>Main cassette paper feed</td><td>AE, main cassette lamp</td></tr>
<tr><td>2nd cassette paper feed</td><td>AE, 2nd cassette lamp</td></tr>
<tr><td>Manual paper feed</td><td>AE, manual feed lamp</td></tr>
<tr><td>SPF/Resist</td><td>AE, TEXT, PHOTO lamp</td></tr>
</table>
* Machine with the single manual paper feed unit installed
<table>
<tr><th>Adjustment mode</th><th>Lamps ON</th></tr>
<tr><td>Main cassette paper feed</td><td>AE, main cassette lamp</td></tr>
<tr><td>Manual paper feed</td><td>AE (Blink)</td></tr>
<tr><td>SPF/Resist</td><td>AE, TEXT, PHOTO lamp</td></tr>
</table></td></tr>
<tr><td>61</td><td>3</td><td>Polygon motor (HSYNC output) check
(Operation/Procedure)
When the START key is pressed, HSYNC is performed and the polygon motor is rotated for 30 sec.
At that time, the Zoom lamp is lighted for 100msec e3very time when HSYNC is detected.</td></tr>
<tr><td>63</td><td>1</td><td>Shading check
(Outline)
Used to display the detection level of the white plate for shading. (Vref of AD conversion IC is fixed.)
(Operation/Procedure)
When the START key is pressed, the mirror base unit moves to the white plate for shading and Vref+ voltage of AD conversion IC is set to 4.5V and Vref- voltage to 0.5V, and the copy lamp is lighted.
This state is kept for 10 sec, and the level of one pixel at the center is detected every second to display on the value display section.</td></tr>
<tr><td>64</td><td>1</td><td>Self print by engine only (1 by 2 mode)
(Outline)
Used to print the set quantity in 1 by 2 mode ignoring the optical system state.
(Operation/Procedure)
1. When this simulation is executed, warming up is performed and the ready lamp is lighted.
2. Enter the copy quantity with the 10-key, select the cassette with the cassette select key, and press the START key. Paper is fed from the cassette and printing is performed.
In 1 by 2 print mode, one line is printed and the following two lines are not printed.</td></tr>
</table>

4. Trouble Codes

Main code	Sub code	Trouble content	Detail of trouble
E7	03	HSYNC cannot be detected.	LSU (laser diode, reception element, APC circuit) trouble LSU drive circuit (ASIC) trouble
E7	04	CCD white level trouble	CCD drive circuit (CCD PWB, ASIC harness) trouble Copy lamp lighting trouble (Copy lamp, invertor PWB)
E7	05	CD black level trouble	CCD drive circuit (CCD PWB, ASIC, harness) trouble
E7	12	Shading trouble (white correction)	Dirt on white plate for scanning white level
E7	14	ASIC connection trouble	Improper connection between CPU and ASIC (pattern cut, improper connection of lead pin)
E7	15	Copy lamp OFF trouble	Copy lamp or copy lamp drive circuit (invertor PWB) trouble Copy lamp disconnection
L1	00	Feed is not completed within the specified time.	When the mirror base is returned for the specified time (6 sec) in mirror initializing after turning on the power, the mirror home position sensor (MHPS) does not turn OFF. Or when the mirror base is fed for the specified time (about 6 sec) after start of copy return, the mirror home position sensor (MHPS) does not turn OFF.
L3	00	Return is not completed within the specified time.	When the mirror base is returned for the specified time (6 sec) in mirror initializing after turning on the power, the mirror home position sensor (MHPS) does not turn ON.Or when the mirror base is returned for the specified time (about 6 sec) after start of copy return, the mirror home position sensor (MHPS) does not turn ON.
L4	01	Main motor lock	When the main motor encoder pulse is not detected for 100msec.
L6	10	Polygon motor lock	The lock signal (specified rpm signal) does not return within a certain time (about 20sec) from starting the polygon motor rotation
H2	00	Thermistor open detection	The fusing thermistor is open.
H3	00	Heat roller abnormally high temperature	The fusing temperature rises above 240°C.
H4	00	Heat roller abnormally low temperature	The fusing temperature does not reach 185°C within 27 sec of turning on the power, or the fusing temperature keeps at 140°C.
U2	01	Counter sum check error	When the counter check sum value stored in the EEPROM is abnormal.
U2	04	EEPROM serial communication error	When a communication trouble occurs with the EEPROM.
CH (Blinking)	-	TD cartridge not installed	Check if TD cartridge is installed.

[11] USER PROGRAM

The conditions of factory setting can be changed according to the use conditions.

Functions which can be set with the user program

Function	Contents	Factory setting
Auto clear.	● When a certain time is passed after completion of copying, this function returns to the initial state automatically. The time to reach the initial state can be set in the range of 30 sec to 120 sec by the unit of 30 sec. This function can be disabled.	60 sec
Pre-heat.	● When the copier is left unused with the power ON, the power consumption is automatically reduced to about 40Wh/H (∗ Note). The time to start this function can be set in the range of 30 sec to 90 sec by the unit of 30 sec. This function cannot be disabled. ● When this function is operated, the pre-heat lamp on the operation panel lights up. To return to the initial state, press any key on the operation panel. (When the COPY button is pressed, a copy is made after returning to the initial state.)	90 sec
Auto shut off passing time.	● When the copier is left unused with the power ON, the power consumption is automatically reduced to about 18Wh/H (∗ Note). The time to start this function can be set in the range of 2 min to 120 min. ● When this function is operated, all the lamps except for the pre-heat lamp on the operation panel turn off. To return to the initial state, press the COPY button.	5 min
Stream feeding.	Only models with SPF.	Set
Auto shut off setting	● Used to set or cancel this function.	Set

∗Note: The power consumption values in pre-heat and auto shut off may be varied depending on the use conditions.

Change the setting.

Example: Changing the time to operate the auto shut off function (Change from 60 sec to 90 sec)

1. Press the right and the left exposure adjustment keys simultaneously to start setting.

- Keep pressing the keys for five sec.
- Display lamps (, , blink simultaneously and "--" is displayed on the copy quantity display.

2. Select the function code with the 10-digit key (copy quantity set key).

- The number of the selected function blinks on the digit of 10 on the copy quantity display.
- For auto clear, select "1."
- For setting, refer to the following function codes.

Function name	Function code
Auto clear	1
Pre-heat	2
Auto shut off passing time	3
Stream feeding	4✻
Auto shut off setting	5

[Cancel] If a wrong code is entered, press the clear key and enter the correct function code.

✻ SPF only

3. Press the COPY button.

- The number blinking on the digit of 10 of the coyp quantity display is lighted.
- The number of the current set code blinks on the digit of 1.

4. Select the setting code with 1-digit key (copy quantity set key).

- To set to 90 sec, select "3."
- For setting, refer to the following set codes.

Function name	Set code	Function name	Set code	Function name	Set code	Function name	Set code	Function name	Set code
Auto clear	0 (Cancel)	Pre-heat	0 (30 sec)	Auto shut off	0 (2 min)	Stream feeding	0 (Cancel)	Auto shut off setting	0 (Cancel)
	1 (30 sec)		1 (60 sec)		∗1 (5 min)		∗1 (Setting)		∗1 (Setting)
	∗2 (60 sec)		2 (90 sec)		2 (15 min)				
	3 (90 sec)				3 (30 min)				
	4 (120 sec)				4 (60 min)				
					5 (120 min)				

∗ : Factory setting

- The number of the selected set code blinks on the digit of 1 of the copy quantity display.

[Cancel] When a wrong number of the function code is set, press the clear key and perform the procedure again from 2.

5. Press the COPY button.

- The number blinking on the digit of 1 of the copy quantity display is lighted up. This means the setting is completed.

[Note] To set another function, press the clear key after completion of this operation and perform the procedure from 2.

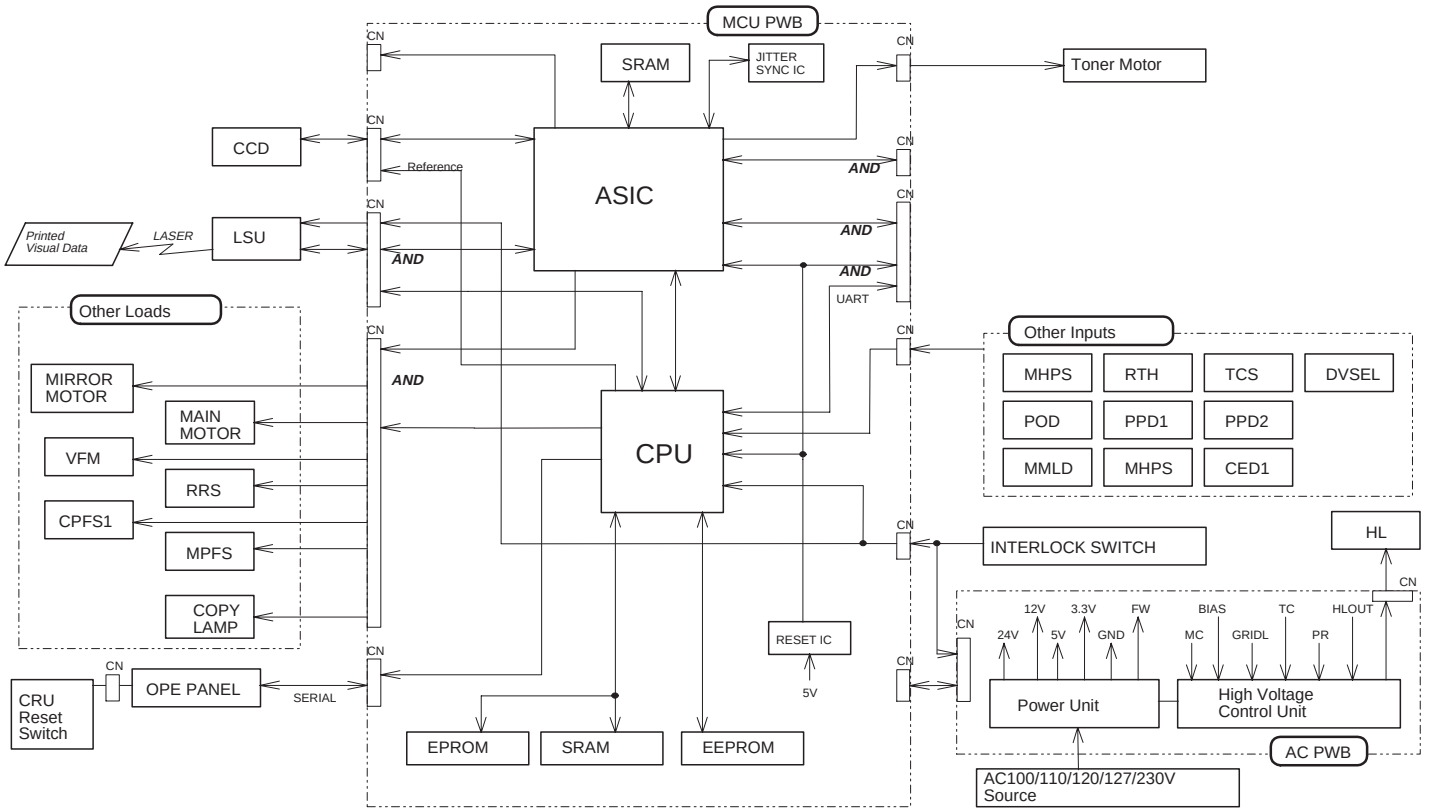
6. Press either one of exposure adjustment keys (or) to complete the setting.

- Display lamps (, ,) go off and the copy quantity display returns to the normal state.

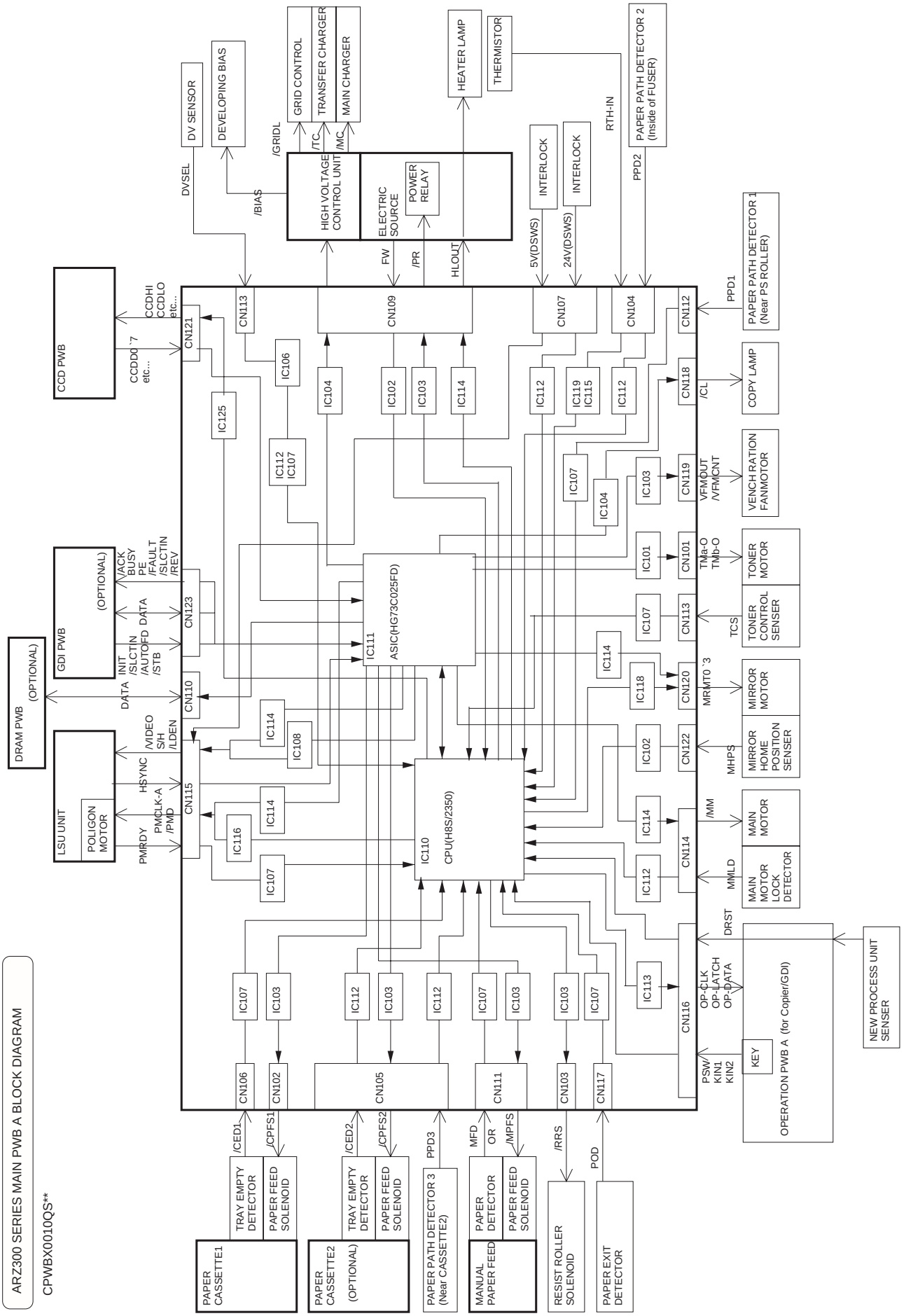
[12] ELECTRICAL SECTION

1. Block diagram

A. Overall block diagram



B. Main PWB block diagram (Load drive block diagram)



2. Circuit descriptions

A. Maiin PWB (MCU)

(1) CPU signal table

CPU pin table
Model without SPF

PIN No	Signal code	Input/output	Operating
1	/CS1	Output	Chip Select for SRAM
2	/CS0	Output	Chip Select for EPROM
3			D-GND
4			D-GND
5			5V
6	A0	Output	Address Bus (NC-pull up)
7	A1	Output	Address Bus
8	A2	Output	Address Bus
9	A3	Output	Address Bus
10		Output	D-GND
11	A4	Output	Address Bus
12	A5	Output	Address Bus
13	A6	Output	Address Bus
14	A7	Output	Address Bus
15	A8	Output	Address Bus
16	A9	Output	Address Bus
17	A10	Output	Address Bus
18	A11	Output	Address Bus
19		Output	D-GND
20	A12	Output	Address Bus
21	A13	Output	Address Bus
22	A14	Output	Address Bus
23	A15	Output	Address Bus
24	A16	Output	Address Bus
25	A17	Output	Address Bus (for 2Mbit EPROM) - (NC)
26	A18	Output	Address Bus (NC-pull up)
27	A19	Output	Address Bus (NC-pull up)
28			D-GND
29	A20	Output	Address Bus (NC-pull up)
30			NC-pull up
31			NC-pull up
32		(Interruption input)	NC-pull up
33	(MHPS)	Interruption level input	Mirror Home Position Sensor
34	/CPUSYNC	Interruption level input	Horizontal Synchronous (from G/A)
35			D-GND
36			D-GND
37	ZC	Interruption level input	Zero-cross signal
38	/ASICINT	Interruption level input	Intterupt from G/A
39			5V
40	D0	Data input/output	Data Bus
41	D1	Data input/output	Data Bus
42	D2	Data input/output	Data Bus
43	D3	Data input/output	Data Bus
44			D-GND

PIN No	Signal code	Input/output	Operating
45	D4	Data input/output	Data Bus
46	D5	Data input/output	Data Bus
47	D6	Data input/output	Data Bus
48	D7	Data input/output	Data Bus
49	D8	Data input/output	Data Bus
50	D9	Data input/output	Data Bus
51	D10	Data input/output	Data Bus
52	D11	Data input/output	Data Bus
53			D-GND
54	D12	Data input/output	Data Bus
55	D13	Data input/output	Data Bus
56	D14	Data input/output	Data Bus
57	D15	Data input/output	Data Bus
58			5V
59	(OP-DATA)	Output	Data Signal for Operation Panel
60			NC-pull up
61			NC-pull up
62			NC-pull up
63	(OP-CLK)	Output	Clock for Operation Panel
64	/PWOFF	Output	Power Off
65			D-GND
66			NC-pull up
67			D-GND
68			D-GND
69	PSW	Input	Print switch input
70	KIN1	Input	Key input 1
71	KIN2	Input	Key input 2
72	TMCLK	Timer output	Clock for Toner Motor
73	/TMEN	Output	On-Off Control for Toner Motor
74			NC-pull up
75	PMCLK	Timer output	Clock for Polygon Motor
76	/PRSTART	Output	Printing Start Signal
77	/SCANSP	Output	Scaning Stop Signal
78	/SCANST	Output	Scaning Start Signal
79	HL	OutputüiTimer outputüj	On-Off Control for Heatrer Lamp
80	WDTOVF-	Output	Watchdog Timer
81	RES-	Input	Reset
82		Input	pull up
83		Input	pull up
84			5V
85	XTAL		Clock
86	EXTAL		Clock
87			D-GND
88	CPUCLK	Output	System Clock for G/A
89			5V
90	/AS	Output	pull up
91	/RD	Output	Read Signal
92	/HWR	Output	Write Signal (High Address)
93	/LWR	Output	Write Signal (Low Address)

PIN No	Signal code	Input/output	Operating
94	SELIN3	Output	Input select 3
95	SELIN2	Output	Input select 2
96	SELIN1	Output	Input select 1
97	PR	Output	Power relay control PR
98	RRS	Output	Resist roller solenoid RPC
99			D-GND
100			D-GND
101	SCLK	Output	Clock Line for EEPROM
102	SDA	Output	Data Line for EEPROM
103			A5V
104			Analog Reference Voltage-A5V
105	RTH	Analog input	Fusing Thirmister
106			
107	SIN1	Input	Sensor input 1
108	SIN2	Input	Sensor input 2
109	SIN3	Input	(Not used)
110	SIN4	Input	(Not used)
111	DAH	Analog output	Reference Voltage (High) for CCD
112	DAL	Analog output	Reference Voltage (Low) for CCD
113			AN-GND
114			D-GND
115			NC-pull up
116			NC-pull up
117			NC-pull up
118			NC-pull up
119	MRMT3	Motor output	Mirror Motor Excitement
120	MRMT2	Motor output	Mirror Motor Excitement
121	MRMT1	Motor output	Mirror Motor Excitement
122	MRMT0	Motor output	Mirror Motor Excitement
123		Input	CPU MODE SET <MODE 4> - GND
124		Input	CPU MODE SET <MODE 4> - GND
125		Input	CPU MODE SET <MODE 4> - Vcc
126			NC-pull up
127	DRST	Input	Drum reset detection
128	/CS2	Output	Chip Select for ASIC

(2) ASIC

1. Outline

Fig. 4 shows the block diagram of the ASIC.

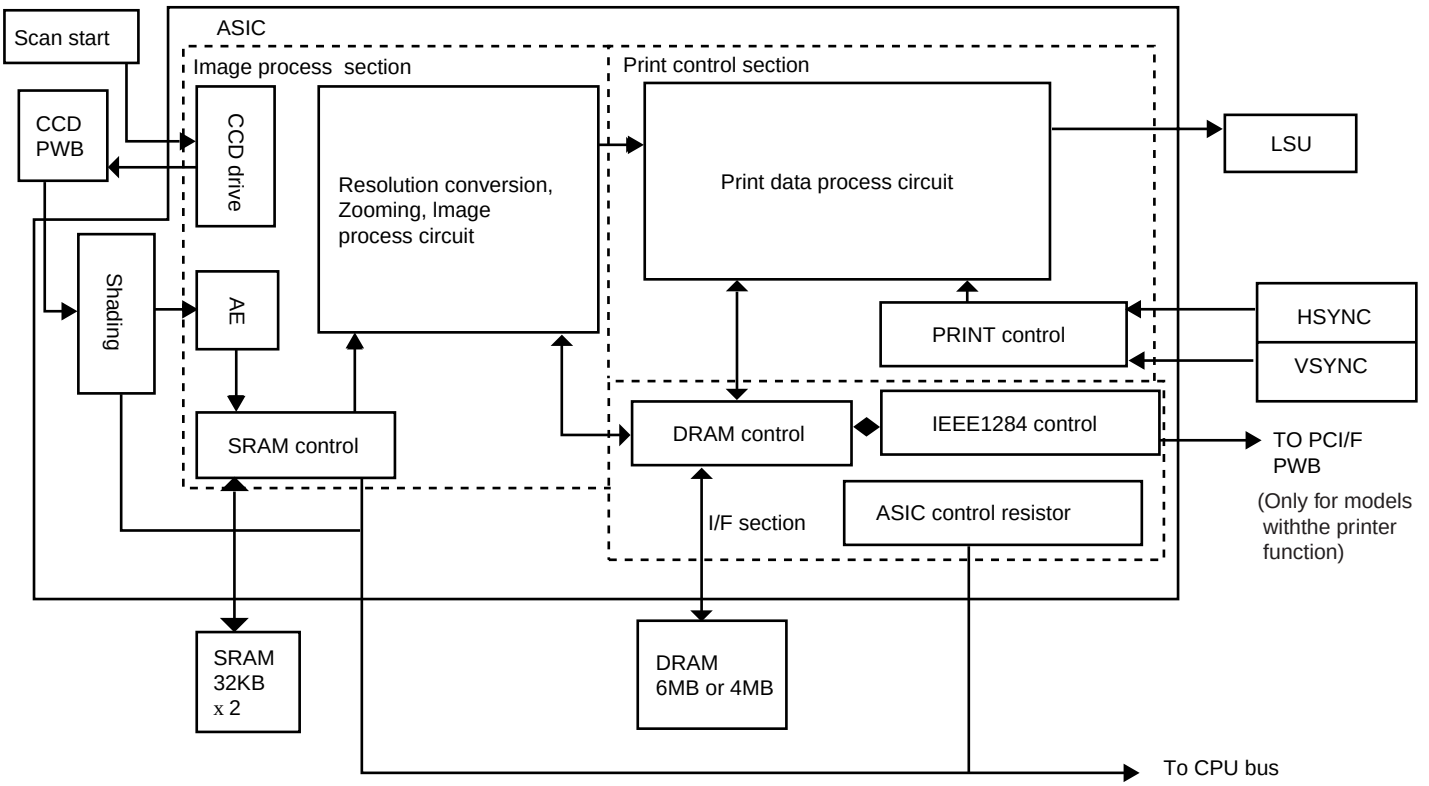
The ASIC is composed of the following three blocks; the image process section, the print control section, and the I/F section.

The image process section processes the image data from the CCD PWB according to the operation mode, such as shading, AE process, resolution conversion. and zooming.

The print control section outputs the image-processed data during copying to the LSU (Laser unit) in synchronization with writing timing of the LSU.

The I/F section controls communication of interface (IEEE1284) with the host PC and controls DRAM of send/receive data buffer with the host PC. (Only for models with the printer function)

The ASIC is controlled by the CPU which writes the operation mode and the set values necessary for each operation mode to the ASIC control register.



2. ASIC input/output

PIN No.	Signal name	IN/OUT	Connected to	Description
1	/SCANSP	IN	CPU (I/O)	Scanner process interrupt signal
2	/PRSTART	IN	CPU	Print start trigger signal
3	TMON	IN	CPU	Toner motor ON/OFF
4	TMCLK	IN	CPU	Toner motor reference clock
5	3.3v	Power		
6	CPUAD7	IN	CPU	CPU address bus
7	CPUAD6	IN	CPU	CPU address bus
8	GND	Power		
9	CPUAD5	IN	CPU	CPU address bus
10	CPUAD4	IN	CPU	CPU address bus
11	CPUAD3	IN	CPU	CPU address bus
12	CPUAD2	IN	CPU	CPU address bus
13	CPUAD1	IN	CPU	CPU address bus
14	/CPUSYNC	OUT	CPU	Horizontal synchronization signal
15	/INTR	OUT	CPU	Interruption request signal
16	/CPUCS	IN	CPU	CPU chip select signal
17	/RESET	IN	RESET IC	Reset signal
18	5V	Power		
19	GND	Power		
20	3.3v	Power		
21	GND	Power		
22	MDATA15	IN/OUT	DRAM	Data bus of DRAM (page memory)
23	MDATA14	IN/OUT	DRAM	Data bus of DRAM (page memory)
24	MDATA13	IN/OUT	DRAM	Data bus of DRAM (page memory)
25	MDATA12	IN/OUT	DRAM	Data bus of DRAM (page memory)
26	MDATA11	IN/OUT	DRAM	Data bus of DRAM (page memory)
27	MDATA10	IN/OUT	DRAM	Data bus of DRAM (page memory)
28	MDATA9	IN/OUT	DRAM	Data bus of DRAM (page memory)
29	MDATA8	IN/OUT	DRAM	Data bus of DRAM (page memory)
30	MDATA7	IN/OUT	DRAM	Data bus of DRAM (page memory)
31	3.3v	Power		
32	MDATA6	IN/OUT	DRAM	Data bus of DRAM (page memory)
33	MDATA5	IN/OUT	DRAM	Data bus of DRAM (page memory)
34	GND	Power		
35	MDATA4	IN/OUT	DRAM	Data bus of DRAM (page memory)
36	MDATA3	IN/OUT	DRAM	Data bus of DRAM (page memory)
37	MDATA2	IN/OUT	DRAM	Data bus of DRAM (page memory)
38	MDATA1	IN/OUT	DRAM	Data bus of DRAM (page memory)
39	MDATA0	IN/OUT	DRAM	Data bus of DRAM (page memory)
40	/RAS0	OUT	DRAM	RAS signal 0 of DRAM (page memory)
41	/RAS1	OUT	DRAM	RAS signal 1 of DRAM (page memory)
42	/RAS2	OUT	DRAM	RAS signal 2 of DRAM (page memory)
43	/RAS64	OUT	DRAM	(Not used)
44	3.3V	Power		
45	/RAS16	OUT	DRAM	(Not used)
46	MAD0	OUT	DRAM	Address bus of DRAM (page memory)
47	GND	Power		
48	MAD1	OUT	DRAM	Address bus of DRAM (page memory)

PIN No.	Signal name	IN/OUT	Connected to	Description
49	MAD2	OUT	DRAM	Address bus of DRAM (page memory)
50	MAD3	OUT	DRAM	Address bus of DRAM (page memory)
51	MAD4	OUT	DRAM	Address bus of DRAM (page memory)
52	MAD5	OUT	DRAM	Address bus of DRAM (page memory)
53	MAD6	OUT	DRAM	Address bus of DRAM (page memory)
54	MAD7	OUT	DRAM	Address bus of DRAM (page memory)
55	MAD8	OUT	DRAM	Address bus of DRAM (page memory)
56	MAD9	OUT	DRAM	Address bus of DRAM (page memory)
57	3.3V	Power		
58	MAD10	OUT	DRAM	Address bus of DRAM (page memory)
59	MAD11	OUT	DRAM	Address bus of DRAM (page memory)
60	GND	Power		
61	/CAS0	OUT	DRAM	CAS signal of DRAM (page memory)
62	/CAS1	OUT	DRAM	CAS signal of DRAM (page memory)
63	/OE	OUT	DRAM	Read enable signal of DRAM (page memory)
64	/WE	OUT	DRAM	Write enable signal of DRAM (page memory)
65	OUTD0	OUT	Additional board	(Not used)
66	OUTD1	OUT	Additional board	(Not used)
67	OUTD2	OUT	Additional board	(Not used)
68	OUTD3	OUT	Additional board	(Not used)
69	3.3V	Power		
70	OUTD4	OUT	Additional board	(Not used)
71	OUTD5	OUT	Additional board	(Not used)
72	GND	Power		
73	OUTD6	OUT	Additional board	(Not used)
74	OUTD7	OUT	Additional board	(Not used)
75	OUTD8	OUT	Additional board	(Not used)
76	OUTD9	OUT	Additional board	(Not used)
77	OUTD11	OUT	Additional board	(Not used)
78	OUTD10	OUT	Additional board	(Not used)
79	OUTD12	OUT	Additional board	(Not used)
80	OUTD13	OUT	Additional board	(Not used)
81	OUTD14	OUT	Additional board	(Not used)
82	OUTD15	OUT	Additional board	(Not used)
83	/HSYNC	OUT	FAX board	(Not used)
84	/PCLPRD	IN	PCL board	(Not used)
85	/PCLREQ	OUT	PCL board	(Not used)
86	/PCLACK	IN	PCL board	(Not used)
87	/PCLCS	IN	PCL board	(Not used)
88	3.3V	Power		
89	GND	Power		
90	5V	Power		
91	GND	Power		
92	/FAXPRD	IN	FAX board	(Not used)
93	/FAXREQ	OUT	FAX board	(Not used)
94	/FAXACK	IN	FAX board	(Not used)
95	3.3V	Power		
96	/FAXCS	IN	FAX board	(Not used)

PIN No.	Signal name	IN/OUT	Connected to	Description
97	/ESPRD	IN	Electronic sort board	(Not used)
98	GND	Power		
99	/ESREQ	OUT	Electronic sort board	(Not used)
100	/ESACK	IN	Electronic sort board	(Not used)
101	/ESCS	IN	Electronic sort board	(Not used)
102	PARAD0	IN/OUT	1284CN board	(Not used)
103	PARAD1	IN/OUT	1284CN board	(Not used)
104	PARAD2	IN/OUT	1284CN board	(Not used)
105	PARAD3	IN/OUT	1284CN board	(Not used)
106	PARAD4	IN/OUT	1284CN board	(Not used)
107	PARAD5	IN/OUT	1284CN board	(Not used)
108	5V	Power		
109	PARAD6	IN/OUT	1284CN board	(Not used)
110	PARAD7	IN/OUT	1284CN board	(Not used)
111	GND	Power		
112	/REV	OUT	1284CN board	(Not used)
113	INIT	IN	1284CN board	(Not used)
114	/SLCTIN	IN	1284CN board	(Not used)
115	/AUTOFD	IN	1284CN board	(Not used)
116	/STB	IN	1284CN board	(Not used)
117	/ACK	OUT	1284CN board	(Not used)
118	BUSY	OUT	1284CN board	(Not used)
119	PE	OUT	1284CN board	(Not used)
120	/FAULT	OUT	1284CN board	(Not used)
121	5V	Power		
122	SLCT	OUT	1284CN board	(Not used)
123	/TESTPIN0	IN	TEST PIN	High: Normal Low: Test
124	GND	Power		
125	PFCLK	IN	Transmitter	Write clock
126	/TESTPIN1	IN	TEST PIN	High: Normal Low: Test
127	/SYNCEN	OUT	JITTER ADJUSTMENT IC	Jitter adjustment IC trigger signal
128	SD10	IN/OUT	SRAM (separation)	Data line to SRAM before are separation
129	SD11	IN/OUT	SRAM (separation)	Data line to SRAM before are separation
130	SD12	IN/OUT	SRAM (separation)	Data line to SRAM before are separation
131	SD13	IN/OUT	SRAM (separation)	Data line to SRAM before are separation
132	SD14	IN/OUT	SRAM (separation)	Data line to SRAM before are separation
133	5V	Power		
134	SD15	IN/OUT	SRAM (separation)	Data line to SRAM before are separation
135	SD16	IN/OUT	SRAM (separation)	Data line to SRAM before are separation

PIN No.	Signal name	IN/OUT	Connected to	Description
136	GND	Power		
137	SD17	IN/OUT	SRAM (separation)	Data line to SRAM before are separation
138	SOE1	OUT	SRAM (separation)	Read enable line to SRAM before area separation
139	SWE1	OUT	SRAM (separation)	Write enable line to SRAM before area separation
140	SCS1	OUT	SRAM (separation)	Chip select line to SRAM before area separation
141	SOE0	OUT	SRAM (separation)	Read enable line to SRAM before area separation
142	SWE0	OUT	SRAM (separation)	Write enable line to SRAM before area separation
143	SCS0	OUT	SRAM (separation)	Chip select line to SRAM before area separation
144	SD00	IN/OUT	SRAM (separation)	Data line to SRAM before are separation
145	SD01	IN/OUT	SRAM (separation)	Data line to SRAM before are separation
146	5V	Power		
147	SD02	IN/OUT	SRAM (separation)	Data line to SRAM before are separation
148	SD03	IN/OUT	SRAM (separation)	Data line to SRAM before are separation
149	GND	Power		
150	SD04	IN/OUT	SRAM (separation)	Data line to SRAM before are separation
151	SD05	IN/OUT	SRAM (separation)	Data line to SRAM before are separation
152	SD06	IN/OUT	SRAM (separation)	Data line to SRAM before are separation
153	SD07	IN/OUT	SRAM (separation)	Data line to SRAM before are separation
154	SAD0	OUT	SRAM (separation)	Address line to SRAM before area separation
155	SAD1	OUT	SRAM (separation)	Address line to SRAM before area separation
156	SAD2	OUT	SRAM (separation)	Address line to SRAM before area separation
157	SAD3	OUT	SRAM (separation)	Address line to SRAM before area separation
158	SAD4	OUT	SRAM (separation)	Address line to SRAM before area separation
159	SAD5	OUT	SRAM (separation)	Address line to SRAM before area separation
160	SAD6	OUT	SRAM (separation)	Address line to SRAM before area separation
161	SAD7	OUT	SRAM (separation)	Address line to SRAM before area separation
162	GND	Power		
163	SAD8	OUT	SRAM (separation)	Address line to SRAM before area separation
164	SAD9	OUT	SRAM (separation)	Address line to SRAM before area separation

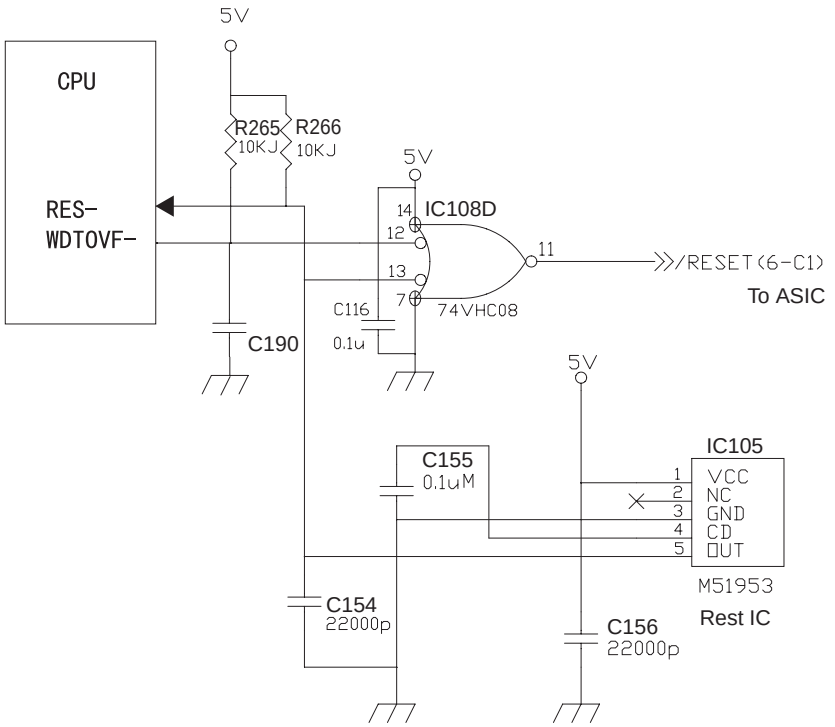
PIN No.	Signal name	IN/OUT	Connected to	Description
165	SAD10	OUT	SRAM (separation)	Address line to SRAM before area separation
166	SAD11	OUT	SRAM (separation)	Address line to SRAM before area separation
167	SAD12	OUT	SRAM (separation)	Address line to SRAM before area separation
168	SAD13	OUT	SRAM (separation)	Address line to SRAM before area separation
169	/f1	OUT	CCD PWB	CCD drive signal transfer clock (First phase)
170	/f2	OUT	CCD PWB	CCD drive signal transfer clock (Second phase)
171	/SH	OUT	CCD PWB	CCD drive signal shift pulse
172	5V	Power		
173	RS	OUT	CCD PWB	CCD drive signal reset pulse
174	SP	OUT	CCD PWB	CCD drive signal sampling hold pulse
175	GND	Power		
176	CP	OUT	CCD PWB	A/D conversion IC latch clock
177	BCLK	OUT	CCD PWB	CCD shield output latch signal
178	IDIN0	IN	CCD PWB (AD conversion)	Image scan data (after 8bit A/D conversion)
179	IDIN1	IN	CCD PWB (AD conversion)	Image scan data (after 8bit A/D conversion)
180	IDIN2	IN	CCD PWB (AD conversion)	Image scan data (after 8bit A/D conversion)
181	IDIN3	IN	CCD PWB (AD conversion)	Image scan data (after 8bit A/D conversion)
182	IDIN4	IN	CCD PWB (AD conversion)	Image scan data (after 8bit A/D conversion)
183	IDIN5	IN	CCD PWB (AD conversion)	Image scan data (after 8bit A/D conversion)
184	IDIN6	IN	CCD PWB (AD conversion)	Image scan data (after 8bit A/D conversion)
185	5V	Power		
186	IDIN7	IN	CCD PWB (AD conversion)	Image scan data (after 8bit A/D conversion)
187	/SDCLK	OUT	CHECK	Effective image area signal
188	GND	Power		
189	SFCLK	IN	Transmitter	CCD drive clock (48MHz), Also used as an internal clock.
190	TEST port 0	IN	AUTO SCAN TEST	High: Normal Low: Test
191	/SYNC	IN	LSU	Horizontal synchronization signal (HSYNC) from LSU
192	/LD	OUT	LSU	Laser drive signal
193	/LEND	OUT	LSU	Laser APC signal
194	PORTOUT28	OUT		(Not used)
195	PORTOUT27	OUT		(Not used)
196	PORTOUT26	OUT		(Not used)
197	3.3V	Power		
198	PORTOUT25	OUT		(Not used)
199	PORTOUT24	OUT		(Not used)
200	GND	Power		
201	PORTOUT23	OUT		(Not used)
202	PORTOUT22	OUT		(Not used)
203	PORTOUT21	OUT		(Not used)

PIN No.	Signal name	IN/OUT	Connected to	Description
204	PORTOUT20	OUT		(Not used)
205	OP-LATCH	OUT	Tr array IC	Latch signal for operation circuit. Data latch at LOW.
206	MRPS2	OUT	Tr array IC	Mirror speed control signal. Mirror speed 2 at LOW.
207	MRPS1	OUT	Tr array IC	Mirror speed control signal. Mirror speed 1 at LOW.
208	PORTOUT16	OUT		(Not used)
209	PORTOUT15	OUT		(Not used)
210	3.3V	Power		
211	TC	OUT	Tr array IC	Transfer charger control signal. ON at HIGH.
212	GRIDL	OUT	Tr array IC	Main charger grid control signal. ON at HIGH.
213	GND	Power		
214	MC	OUT	Tr array IC	Main charger control signal. ON at HIGH.
215	BIASL	OUT	Tr array IC	DV bias voltage control signal. ON at HIGH.
216	BIASH	OUT	Tr array IC	DV bias voltage control signal. ON at HIGH.
217	BIAS	OUT	Tr array IC	DV bias output control signal. ON at HIGH.
218	CL	OUT	Tr array IC	Copy lamp control signal. ON at HIGH.
219	VFMCNT	OUT	Tr array IC	Ventilation fan rotating speed control signal. Low speed at HIGH, high speed at LOW.
220	VFM	OUT	Tr array IC	Ventilation fan control signal. Fan ON at HIGH.
221	LDEN	OUT	Tr array IC	Laser circuit control signal. Laser circuit ON at HIGH.
222	PMD	OUT	Tr array IC	Polygon motor control signal. Polygon motor ON at HIGH.
223	5V	Power		
224	MM	OUT	Tr array IC	Main motor control signal. Main motor ON at HIGH.
225	MPFS	OUT	Tr array IC	Manual paper feed solenoid control signal. Multi paper feed ON at HIGH.
226	GND	Power		
227	CPFS2	OUT	Tr array IC	Second cassette paper feed solenoid control signal. Second cassette paper feed at HIGH.
228	CPFS1	OUT	Tr array IC	Cassette paper feed solenoid control signal. One-stage cassette paper feed at HIGH.
229	TM	OUT	Tr array IC	Toner motor drive output (+)
230	TM_	OUT	Tr array IC	Toner motor drive output (–)
231	CPUD15	IN/OUT	CPU	CPU data bus
232	CPUD14	IN/OUT	CPU	CPU data bus
233	CPUD13	IN/OUT	CPU	CPU data bus
234	CPUD12	IN/OUT	CPU	CPU data bus
235	CPUD11	IN/OUT	CPU	CPU data bus
236	5V	Power		
237	CPUD10	IN/OUT	CPU	CPU data bus
238	CPUD9	IN/OUT	CPU	CPU data bus
239	GND	Power		
240	CPUD8	IN/OUT	CPU	CPU data bus
241	CPUD7	IN/OUT	CPU	CPU data bus
242	CPUD6	IN/OUT	CPU	CPU data bus
243	CPUD5	IN/OUT	CPU	CPU data bus
244	CPUD4	IN/OUT	CPU	CPU data bus
245	CPUD3	IN/OUT	CPU	CPU data bus
246	CPUD2	IN/OUT	CPU	CPU data bus
247	CPUD1	IN/OUT	CPU	CPU data bus
248	CPUD0	IN/OUT	CPU	CPU data bus
249	3.3V	Power		

PIN No.	Signal name	IN/OUT	Connected to	Description
250	/CPUWR	IN	CPU	CPU write signal
251	/CPURD	IN	CPU	CPU read signal
252	GND	Power		
253	CPUCLK	IN	CPU	CPU system clock
254	GND	Power		
255	TEST PORT1	IN	AUTO SCAN TEST	High: Normal Low: Test
256	/SCANST	IN	CPU (I/O)	Scanner process start signal

(3) Reset circuit

This circuit detects ON/OFF of power to control start/stop of each circuit. The 5V voltage of the main PWB is detected by the reset IC to generate the reset signal.
When the power voltage reaches the specified level, the circuit operations are started. Before the power voltage falls below the specified level, the circuit operations are stopped to prevent against malfunctions.

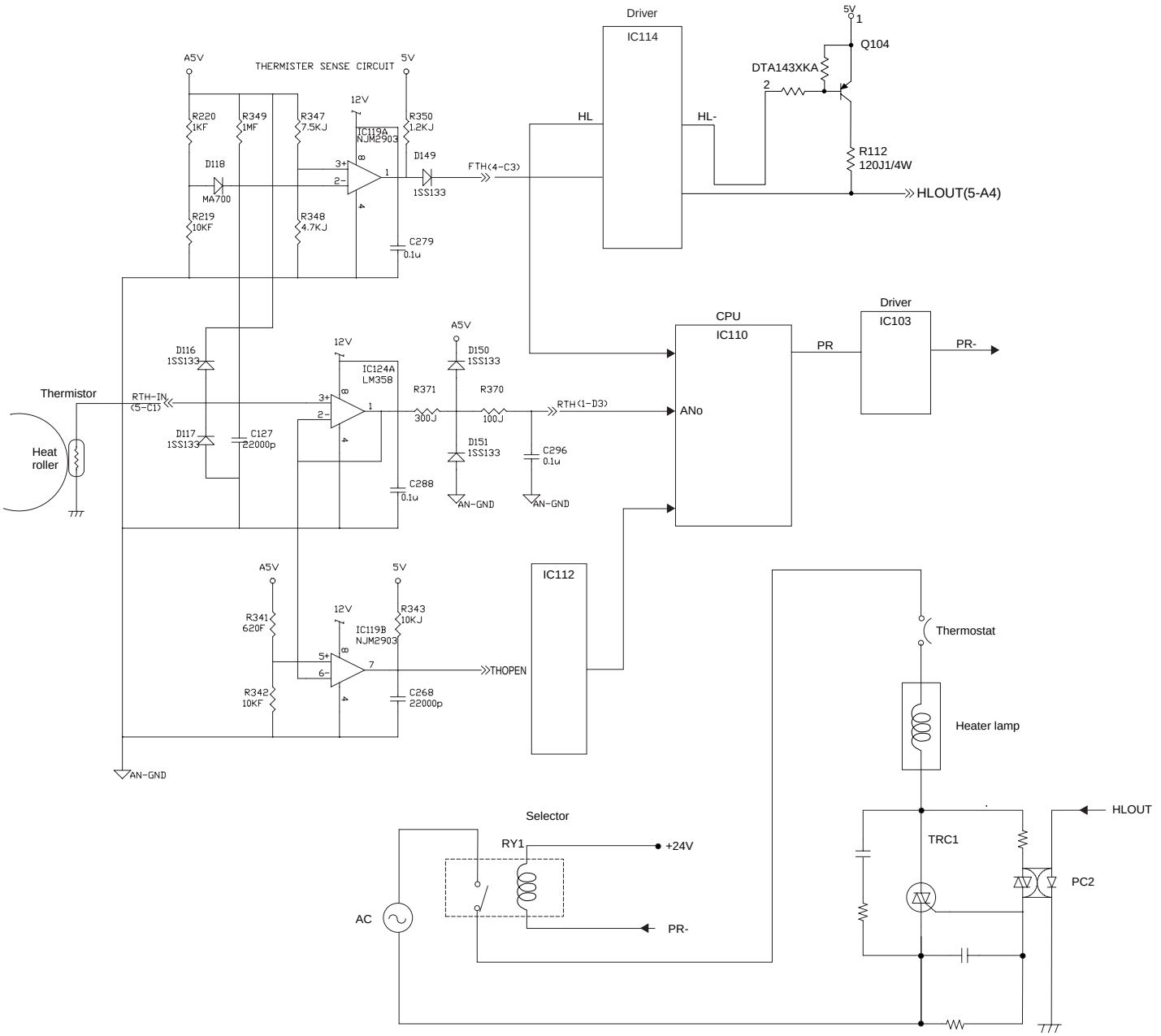


(4) Heater lamp control circuit

(1) Outline

The heater lamp control circuit detects the heat roller surface temperature and converts in into a voltage level, which is inputted to the CPU analog input pin.

The CPU converts the analog voltage into a digital signal level and compares it with the set value of the simulation to turn on/off the heater lamp according to the level, maintaining the heat roller surface temperature at a constant level.



The lower the heat roller surface temperature is, the greater the thermistor resistance is, and vise versa.
Therefore, the lower the heat roller surface temperature is, the higher the thermistor terminal voltage is, and vise versa. The thermistor terminal voltage is inputted to the CPU analog port. The CPU controls ON/OFF of the heater lamp by this input voltage level.

[High temperature protect circuit in case of CPU hung up]
For IC119 3pin (reference voltage), +5V is divided by the resistor.
The thermistor terminal voltage is inputted to IC119 2pin.
When, therefore, the voltage at 2pin becomes lower than the voltage at 3pin (when the heat roller temperature is about 220 C - 230˚C), IC119 1pin becomes HIGH, and the HL signal is lowered to the GND level through IC114, stopping generation of the heater lamp ON signal. (IC119 1pin is normal LOW.)

[When the heat roller surface temperature is lower than the set level]

a. Since the thermistor terminal voltage is higher than the set level, the HL signal from the CPU becomes HIGH.
b. The HL signal is turned to be the HLOUT signal through IC114 protect circuit, and inputted to the photo triac coupler (PC2).
c. When the internal triac turns on, a pulse is applied to the gate of the external triac. Consequently a current flow from the power source through the heater lamp to the triac, lighting the heater lamp.

[When the heat roller surface temperature is higher than the set level]

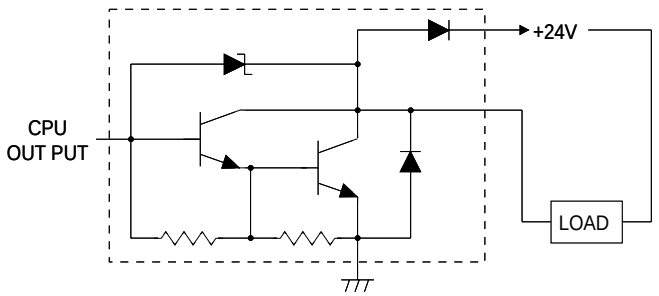
a. Since the thermistor terminal voltage becomes lower than the set value, the HL signal from the CPU becomes LOW.
b. The HL turns LOW, the PC2 turns OFF, the external triac turns OFF, and the heater lamp turns OFF.

[In case of the thermistor open]
The voltage at IC119 6pin over the voltage at 5pin to drive the output THOPEN at 7pin to LOW. This is passed through the selector to the CPU and the trouble code “H2” is displayed.

(5) Driver circuit (Solenoid)

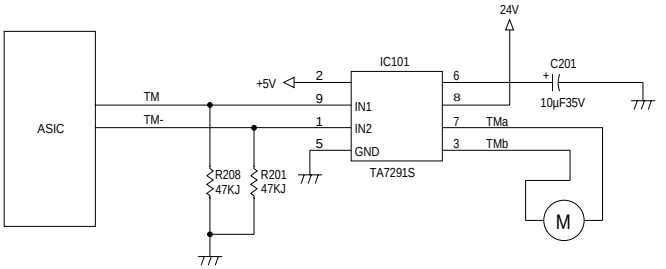
(1) Outline
Since the control signal of each load outputted from the CPU cannot drive the load directly, it is passed through the driver IC to the load.

(2) Operation
The driver circuit forms a Darlington circuit with transistors.
Therefore a large drive current is obtained from a small current (CPU output current). When the driver input voltage is HIGH (+5V), the transistor turns ON to flow a current in the arrow direction, operating the load. When the driver is ON, the driver output terminal voltage is 0V.

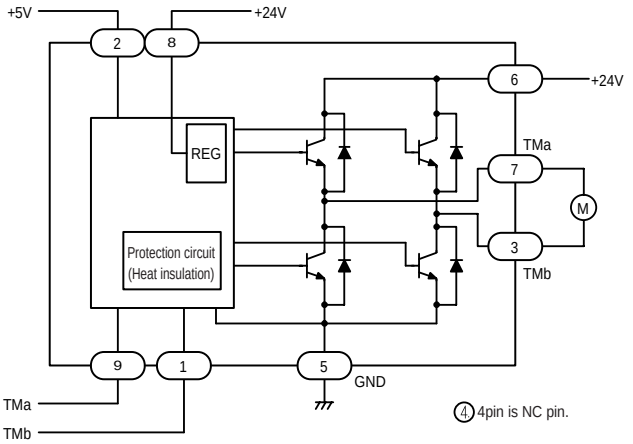


(6) Toner supply motor drive circuit

The IC101 is the motor control IC, which generates the pseudo AC waveform with the pulse signals (TM, TM-) outputted from ASIC, driving the toner supply motor.

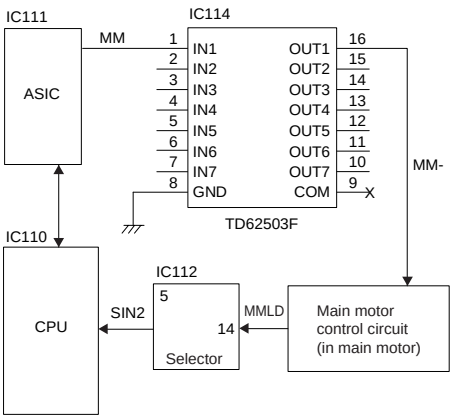


Internal circuit



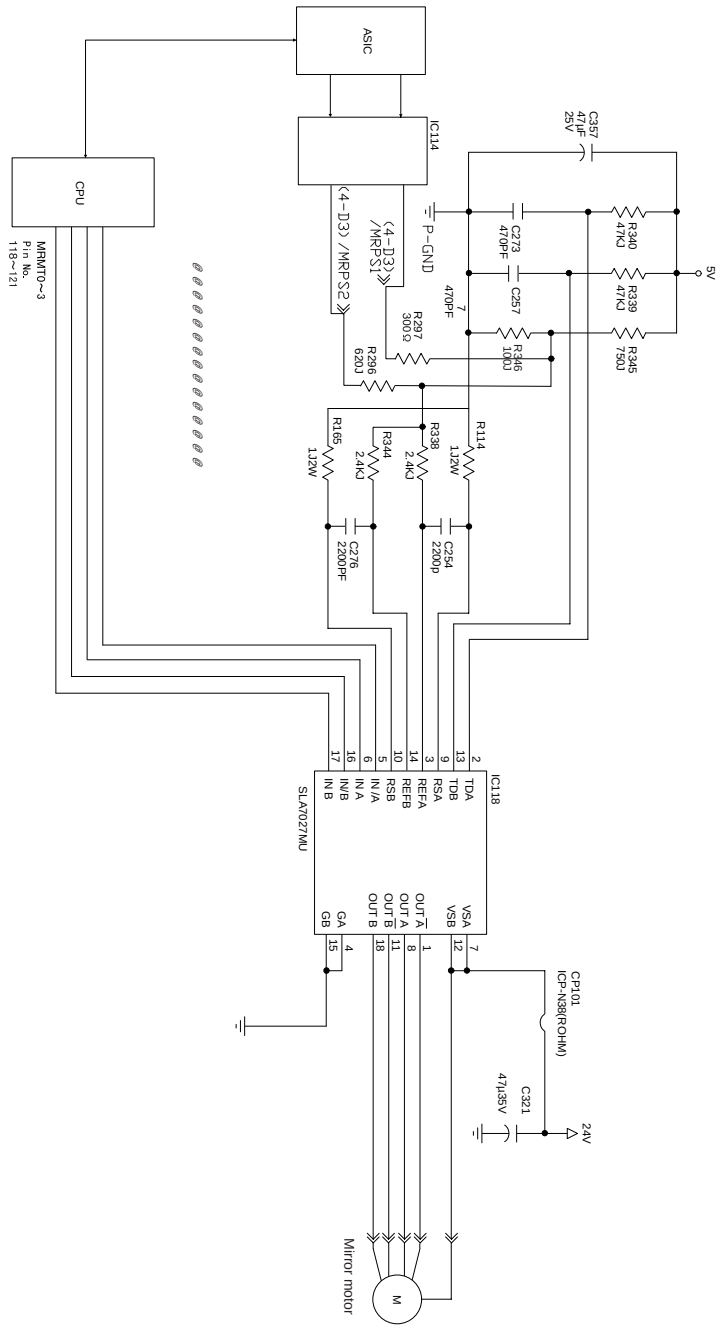
(7) Main motor drive circuit

The main motor is driven by the MM signal from ASIC. While the main motor is rotating, the MM signal is driven to HIGH and passed through IC114 to the control circuit in the main motor to rotate the main motor. The MMLD signal is kept HIGH until the main motor speed reaches the specified rpm, and passed through the selector to the CPU.



(8) Mirror motor circuit

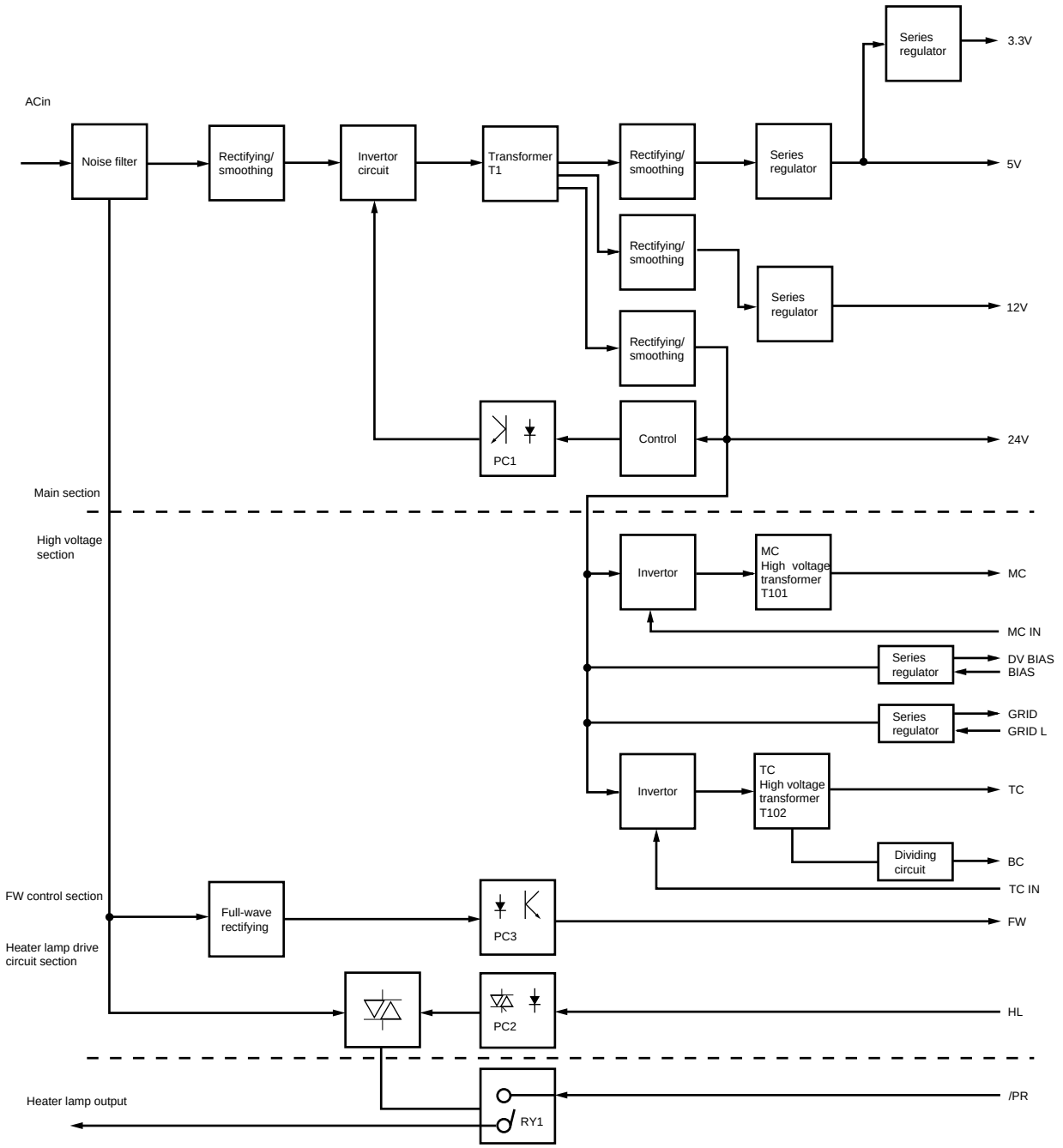
The mirror motor is a stepping motor, and it uses the IC118 and the constant current chopper control IC (SLA7027). For control, the CPU outputs the drive signal to the IC118 to drive the mirror motor with 1-2 phase excitement.



(9) Power circuit block diagram

Block diagram

The power circuit is composed of the main section, the high voltage circuit, the FW signal section, and the heater lamp drive circuit. The main section directly rectifies the AC power current and switch-converts with the DC/DC convertor, and rectifies again and smoothes to form each DC power.
In the high voltage circuit section, the 24V output of the main section is switch-converted by the DC/DC convertor and rectified and smoothed to form the high voltage output.
The FW signal section fullwave-rectifies the AC power to supply signal output at the timing of 0V.



Circuit descriptions

(1) Main section

a. Noise filter circuit

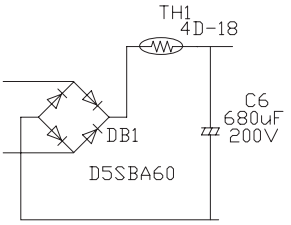
The noise filter circuit of the DC power is composed of L and C as shown in the figure below. It reduces normal mode noises and common mode noises which come from and go to the AC line.

The normal mode noises are noises which are generated in the AC line or the output line and are attenuated by C4B and C3. The common mode noises are noise voltages generated between the AC line and GND, and are attenuated by L1 and L2. The noise composition is bypassed to GND through C4 and C5.

b. Rectifying/smoothing circuit

The AC voltage of 50(60)Hz is full-wave rectified by the rectifying diode DB1 and smoothed by the smoothing capacitor C6.

TH1 is the power thermistor which limits a rush current flowing to C6.



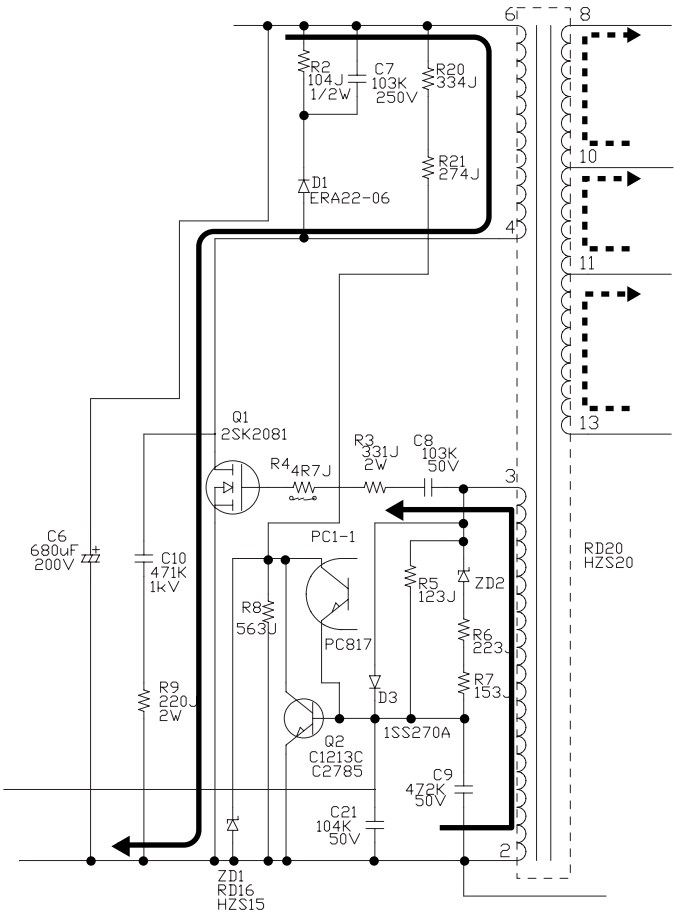
C. Invertor circuit

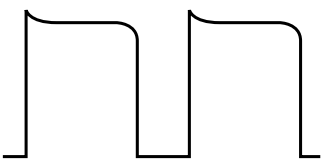
The DC voltage from the rectifying/smoothing circuit is supplied to the secondary side of transformer T1 by switching operation of FET Q1.

For switching, the RCC (Ringing Choke Convertor) system is employed.

FET Q1 is turned on by the starting resistors R20 and R1 to generate a voltage between terminals 4 and 6 of transformer T1 and between terminals 2 and 3 simultaneously. Then a voltage is applied to the gate of FET Q1 to oscillate high frequency.

The actual line in the circuit diagram shows the current to turn ON FET Q1, and the dotted line shows the current loop through which the energy accumulated in the transformer is discharged when FET Q1 is turned OFF.



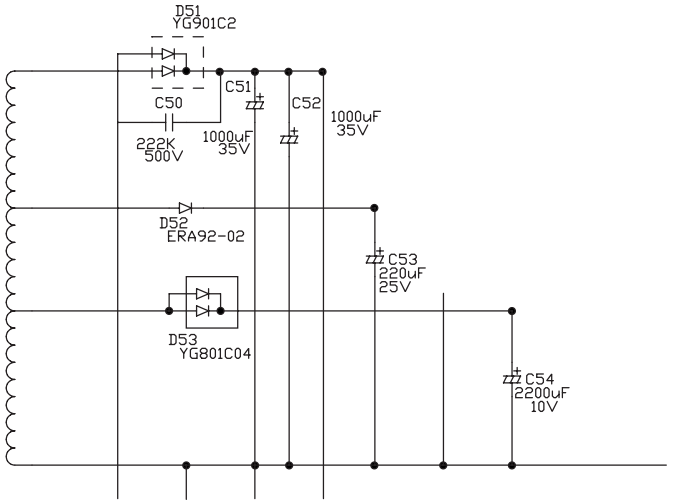


Voltage across Q1 drain and source (VDS)

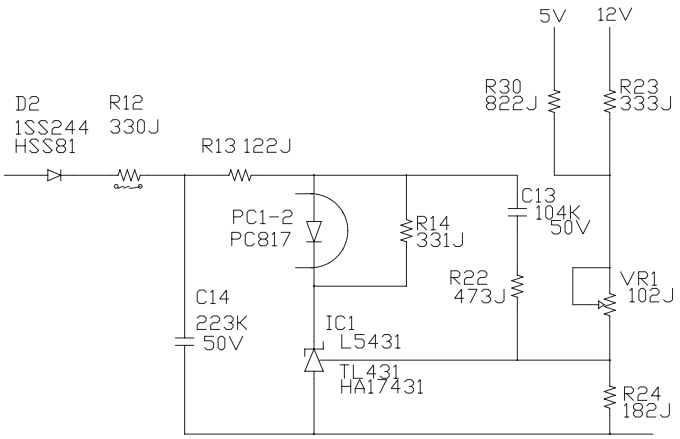
Q1 drain current (ID)

d. Rectifying/smoothing circuit on the secondary side

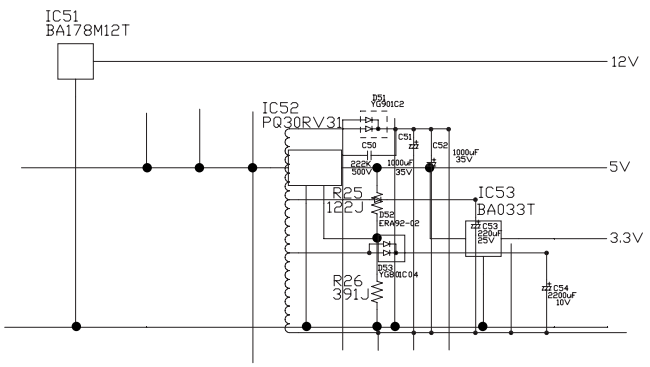
The high frequency pulse generated by the invertor circuit is dropped by transformer T1, rectified by diodes D51, D52, and D53, and smoothed by capacitors C51, C52, C53, and C54.



e. Control circuit
The secondary side outputs (24V series, 5V series) are detected by the output voltage detecting circuit, and the detected signal is fed-back through photo coupler PC1 to the control transistor Q2 to change the ON period of FET Q1 in the primary side invertor circuit, stabilizing the output voltage.

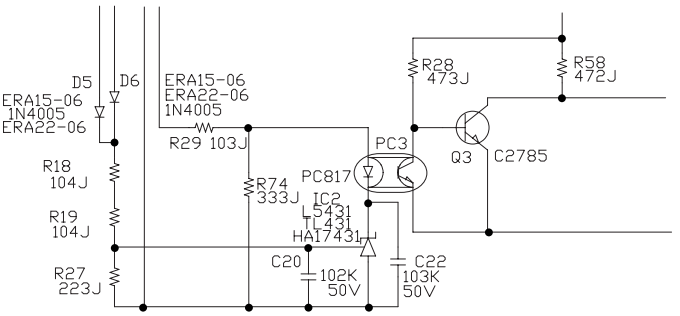


f. Series regulator circuit
This circuit stabilizes the output and protect against an overcurrent by the series regulator. The 12V is composed of IC51, the 5V is composed of IC52, the 3.3V is composed of IC53.

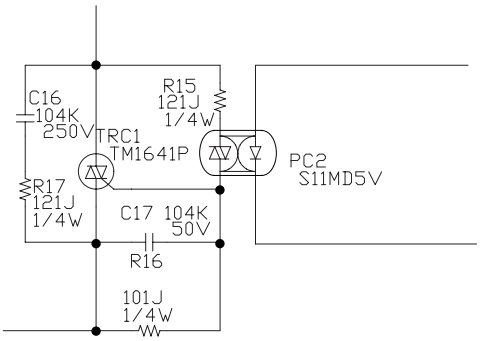


(2) FW signal

The AC input voltage is full-wave rectified by D5 and D6. When the voltage is divided by resistors R18, R19, and R27 and decreased below 2.5V, the shunt regulator IC7 is turned OFF to turn OFF photo coupler PC3, and turn ON transistor Q3. LOW level output of FW signal is provided.



(3) Heater lamp drive circuit



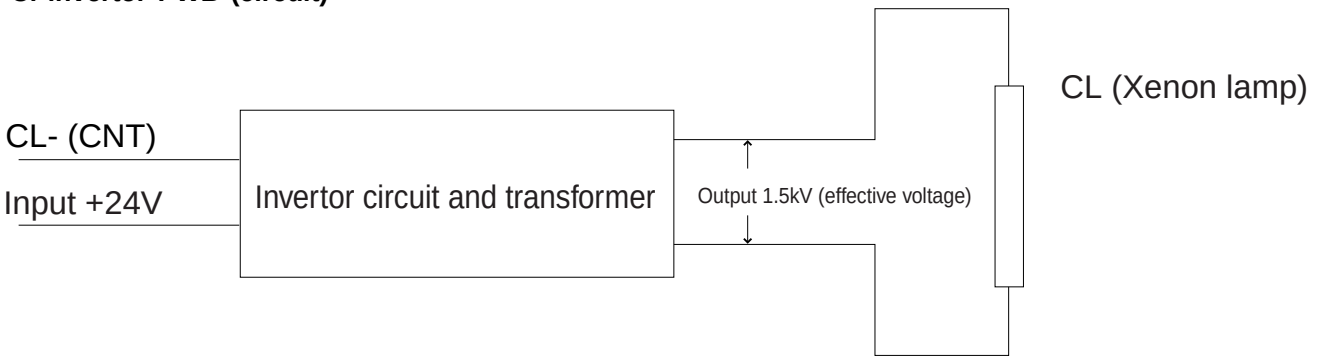
(4) High voltage section

a. Invertor circuit
The 24V output of the main section is inverted by the RCC system and the high frequency power is supplied to the secondary side of high voltage transformer T101 and T102. The diode and the capacitor for rectifying and smoothing are built in the secondary side of high voltage transformer T101 and T102 to provide DC outputs of high voltage. MC is turned ON/OFF by MC IN terminal, and TC is turned ON/OFF by TC IN terminal.

b. Series regulator
The GRID output of DV BIAS is applied from the MC output and dropped by the series regulator.
DV BIAS is turned ON/OFF by BIAS terminal, and the GRID voltage is switched by GRID L terminal.

c. Dividing circuit
BD OUT takes out a voltage from T102 and divides it with the resistor and outputs it.

(10) CI invertor PWB (circuit)

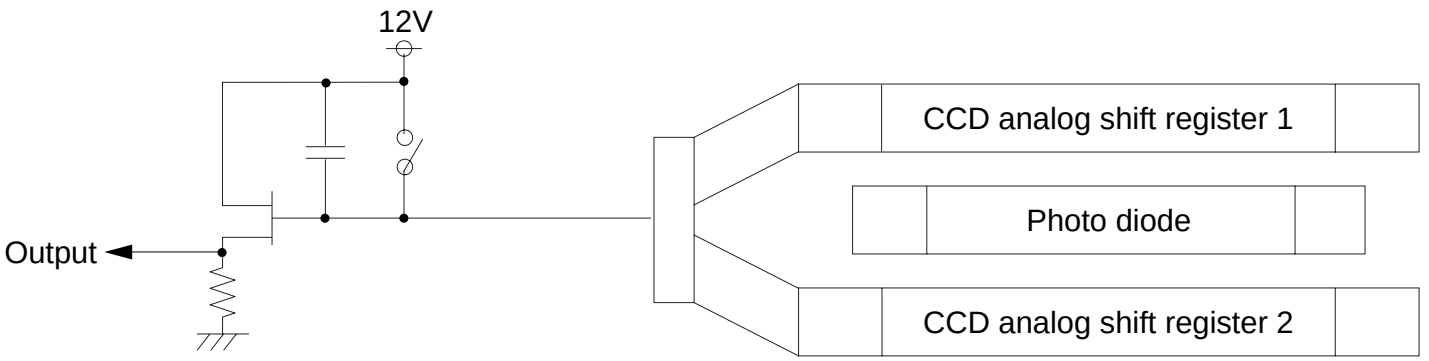


Circuit description
The Two transistors connected in series to the transformer are switched on/off by the control signal (CL-) from the MCU. By this switching operation, the signals are converted into switching pulses and a high frequency power is supplied to the CL (Xenon lamp) by the transformer.

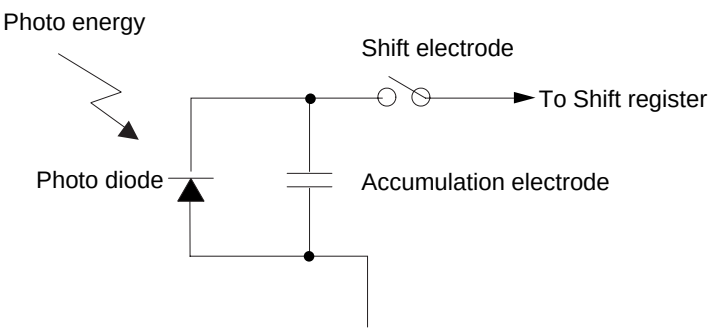
(11) CCD PWB operational description

The CCD PWB is provided with the CCD (Charge-Coupled Device), the differential amplifier which amplifies CCD signals, and the AD convertor which converts the amplified signals into digital signals.

The DC power and the pulse supply pins necessary for operating the CCD image sensor are the power source (CD pin), GND (SS pin), shift pulse (SH pin), transfer pulse (ϕ1 pin), (ϕ2 pin), reset pulse (/RS pin), clamp pulse (/CP pin), and sampling (/SP pin).
Photo data are stored in the light receiving element at the center of the CCD by the SH signal. Even number pixel data are sent to one of the two shift registers which are positioned at both ends of the light receiving element, and odd number pixel data are sent to the other shift register. The time interval between inputting two SH signals is called the photo accumulation time.
The signals are transfered to the register, then to the shift register sequentially by transfer pulses ???1 and ???2 and to the floating capacitor section where electric signals are voltage-converted. Electric charges from the even number pixel shift register and the odd number pixel shift register are flowed to the floating capacitor section alternatively.



The /RS signal is the reset signal of the CCD output signal. The CCD output is expressed as electric charges equivalently accumulated in the capacitor. Therefore, to take the CCD output data one pixel by one pixel, one output data must be cleared after it is outputted. The /RS signal is used for that operation.



The /SP pulse signal is the peak hold signal of the signal voltage.
The output signal from the CCD is amplified by about 4.7 times greater in the differential amplifier circuit in the CCD PWB. Differential amplification is made for the signal output (OS) and the compensation output (DOS).

The amplified CCD signal output is sent to the clamp circuit. In the clamp circuit, the black level is clamped to 2V at the BCLK signal timing by the analog switch. The clamped voltage is maintained for one line by the coupling capacitor. The clamped analog signal is impedance-converted and inputted to the AD convertor.
The analog signal inputted to the AD convertor is converted into 8bit digital data and passed to the PCU PWB.
The machine employs the TCD1501C as the image sensor. The TCD1501C is the reduction type high sensitivity CCD linear sensor of one-output system. 5000 pixels of 7um x 7um are arranged in line to allow scanning of A3 document at 400dpi (16 lines/mm).

Operation section

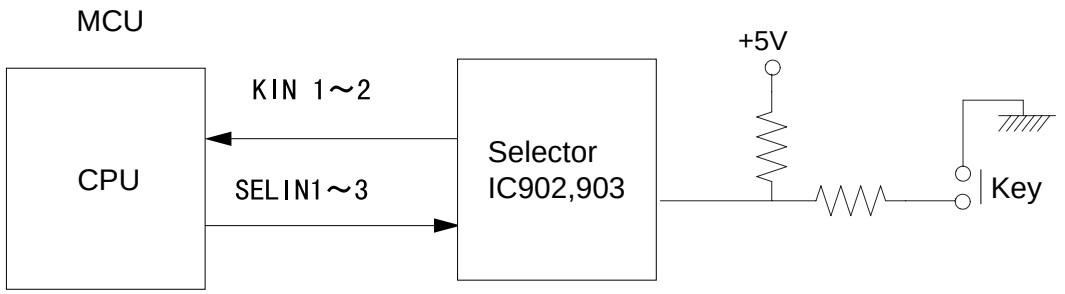
(1) Outline

The operation circuit is composed of the key matrix circuit and the display matrix circuit.

(2) Key matrix circuit

The CPU in the MCU sends select signals SELIN1 - 3 to the selector in the operation circuit. The signals detects ON/OFF of the key and are sent to the CPU as KIN1 - 2.

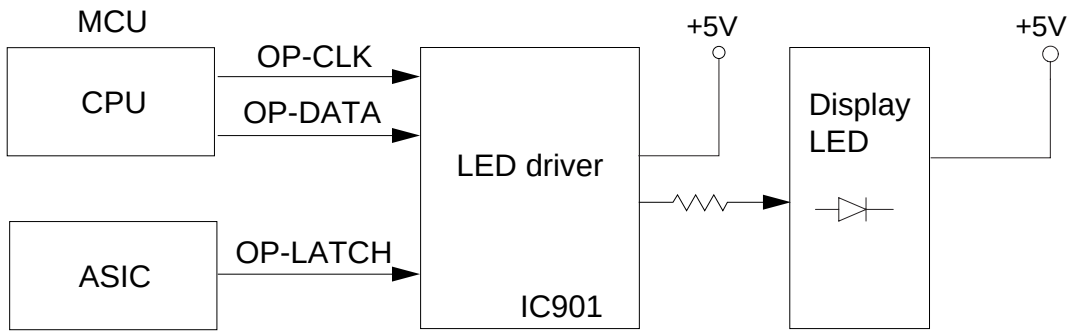
Operation circuit



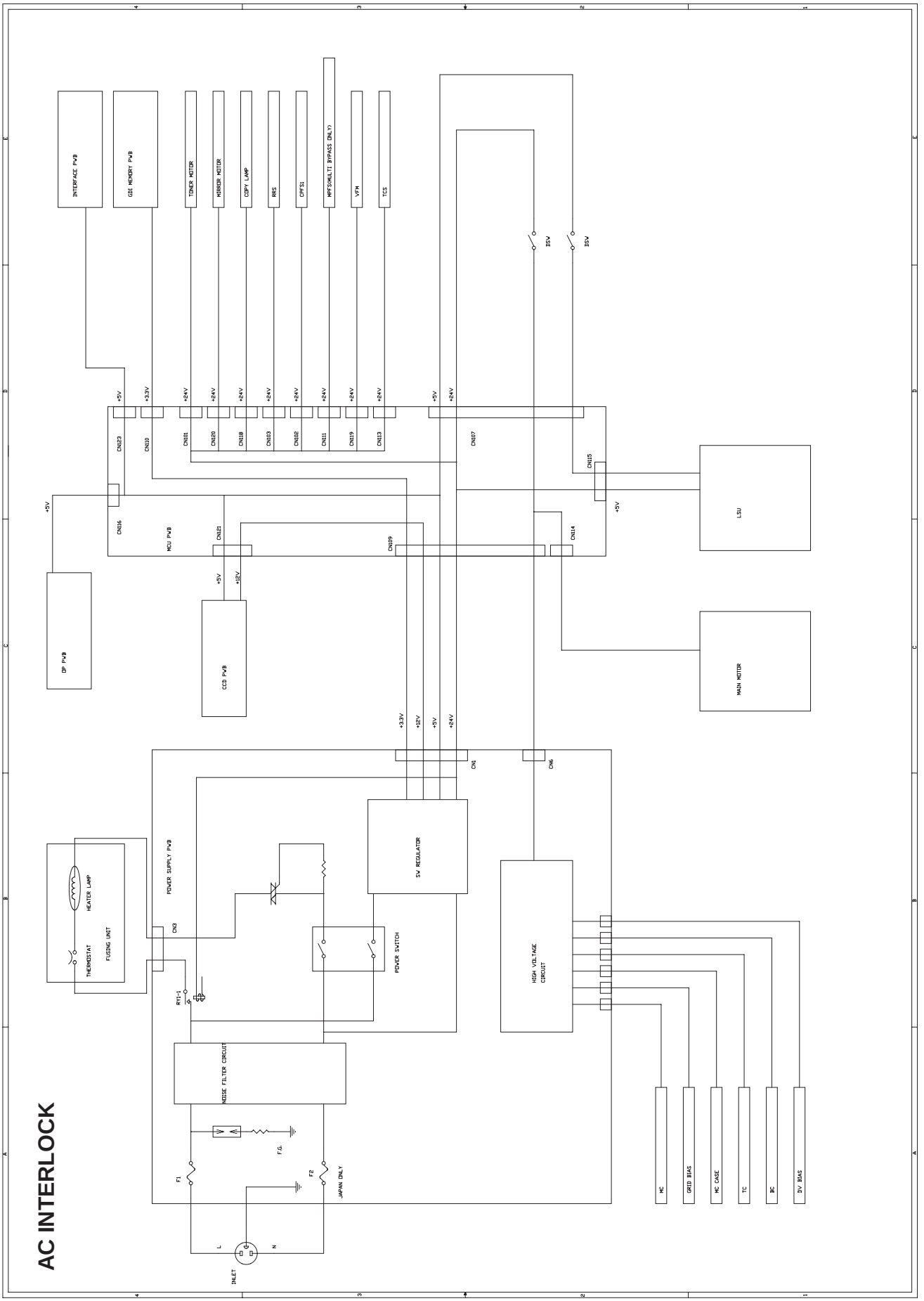
(3) Display circuit section

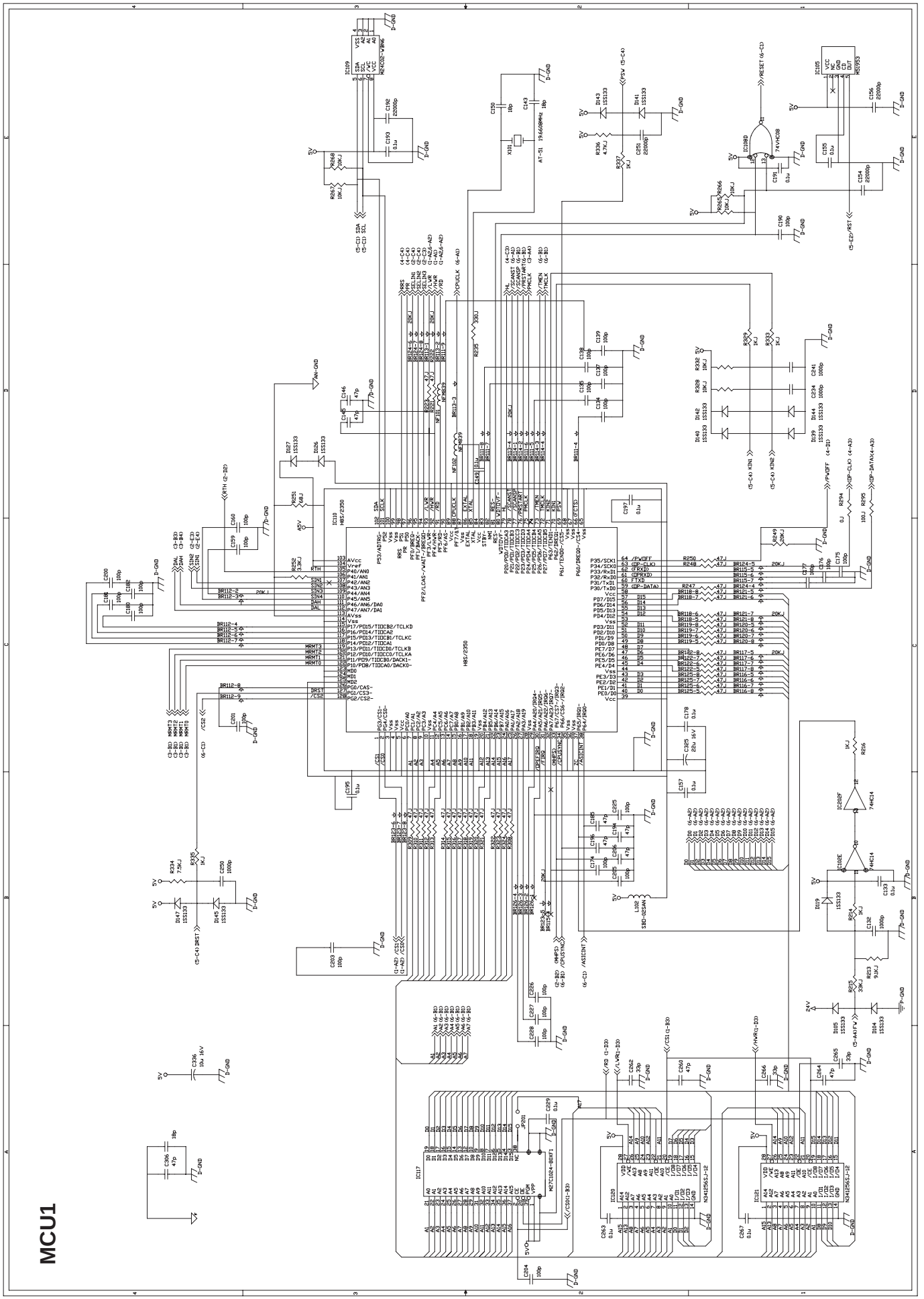
The display is controlled by inputting the data signal and the clock signal from the CPU and the latch signal from the ASIC to the LED driver in the operation circuit.

Operation circuit

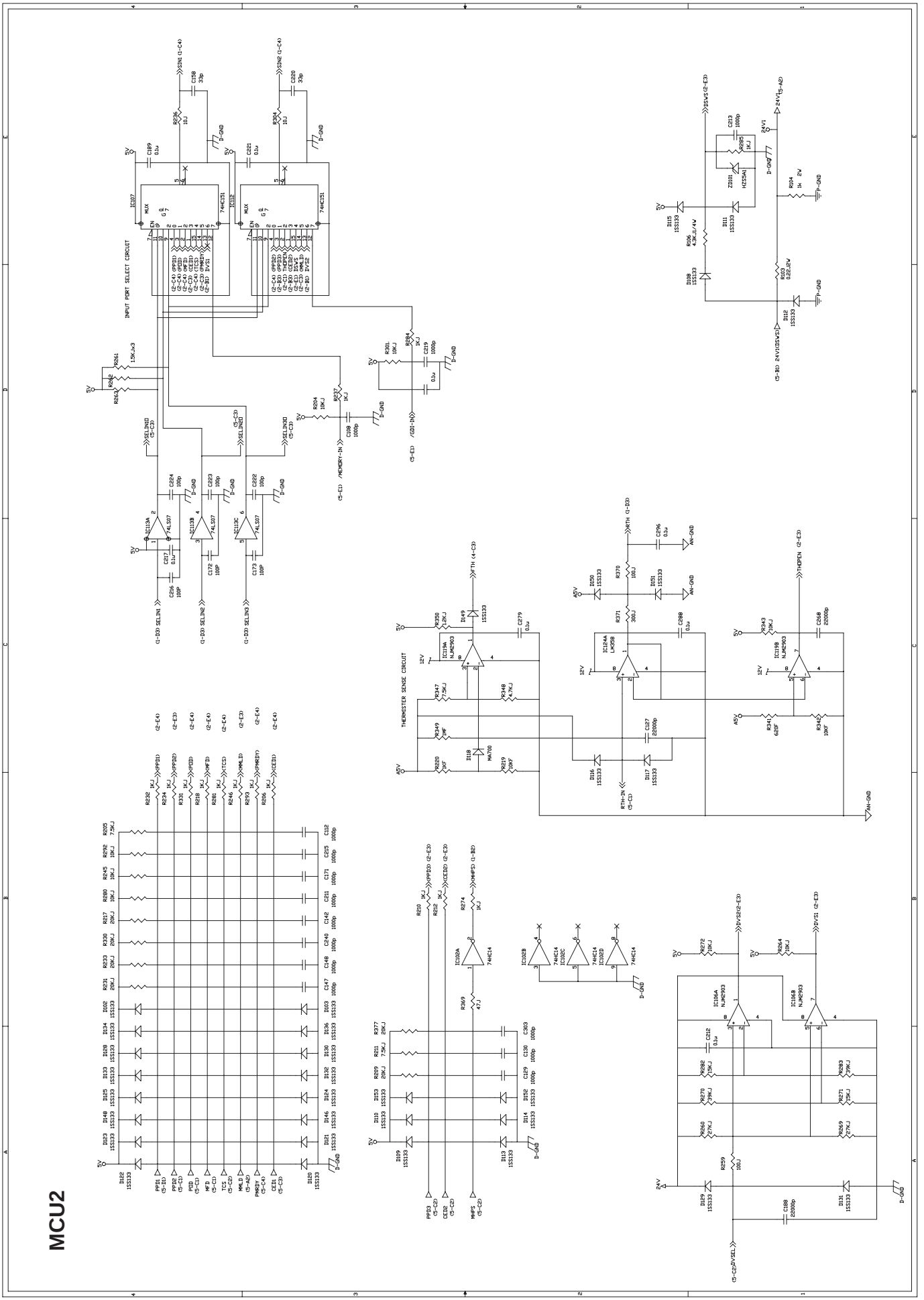


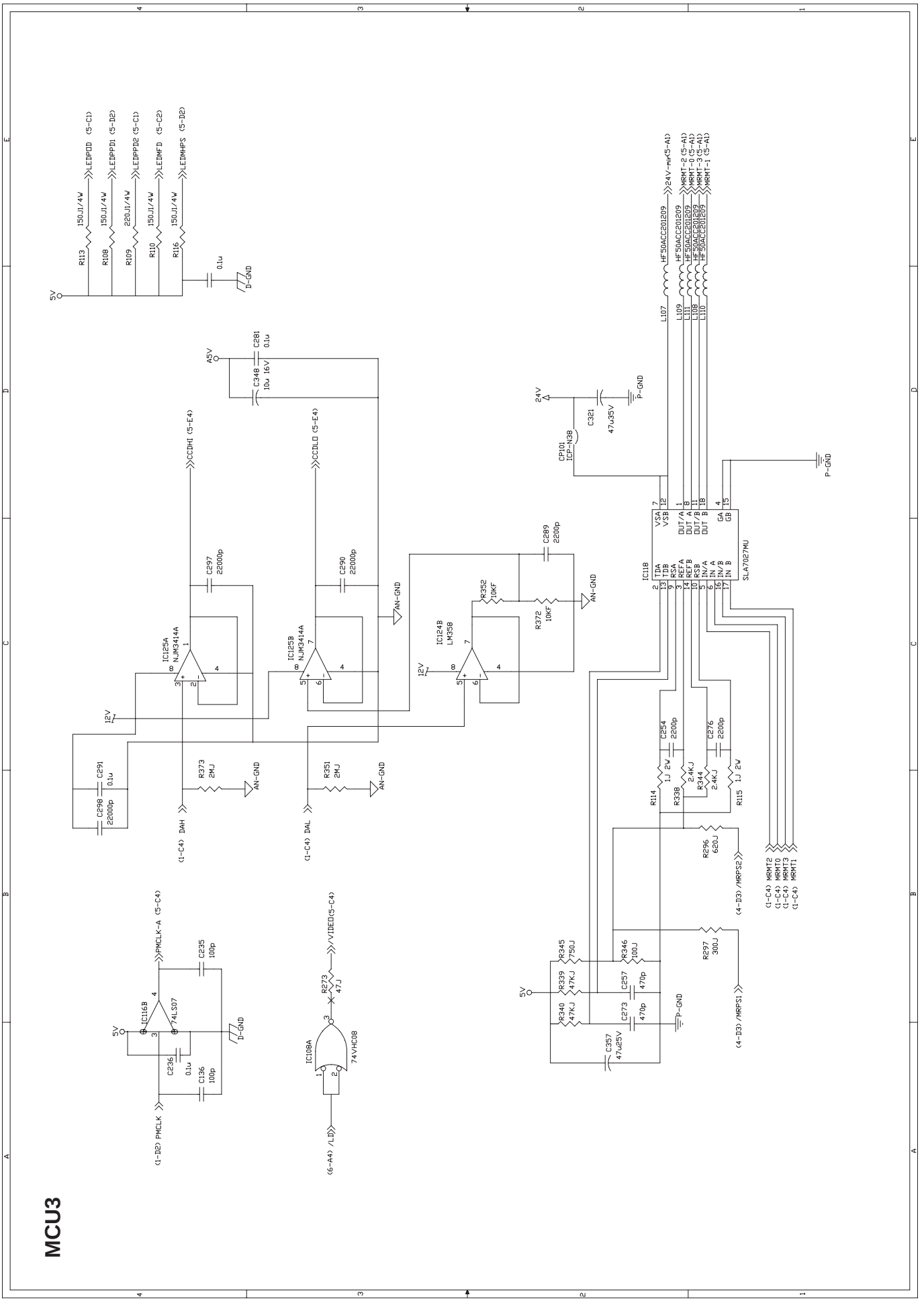
[13] CIRCUIT DIAGRAM

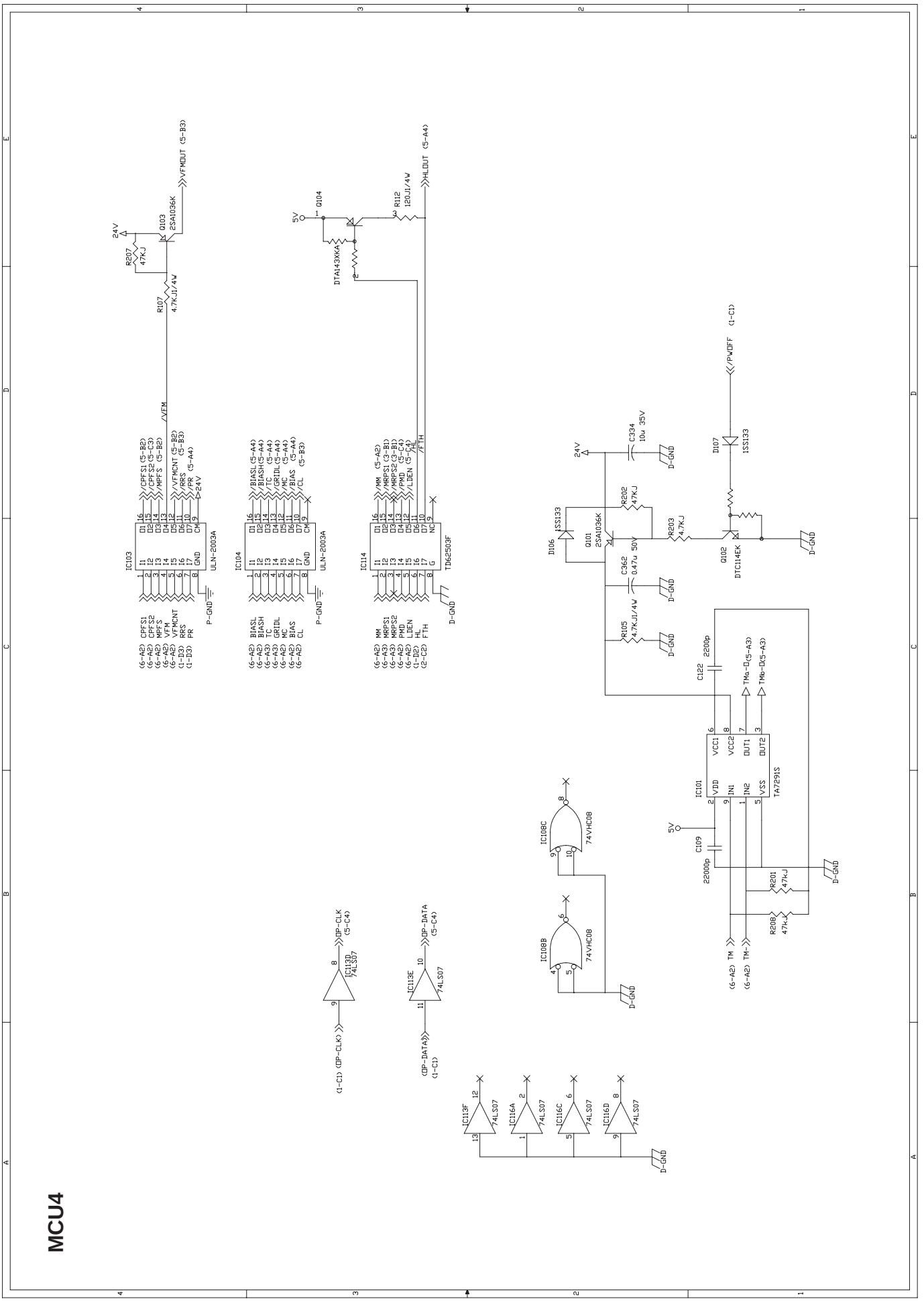


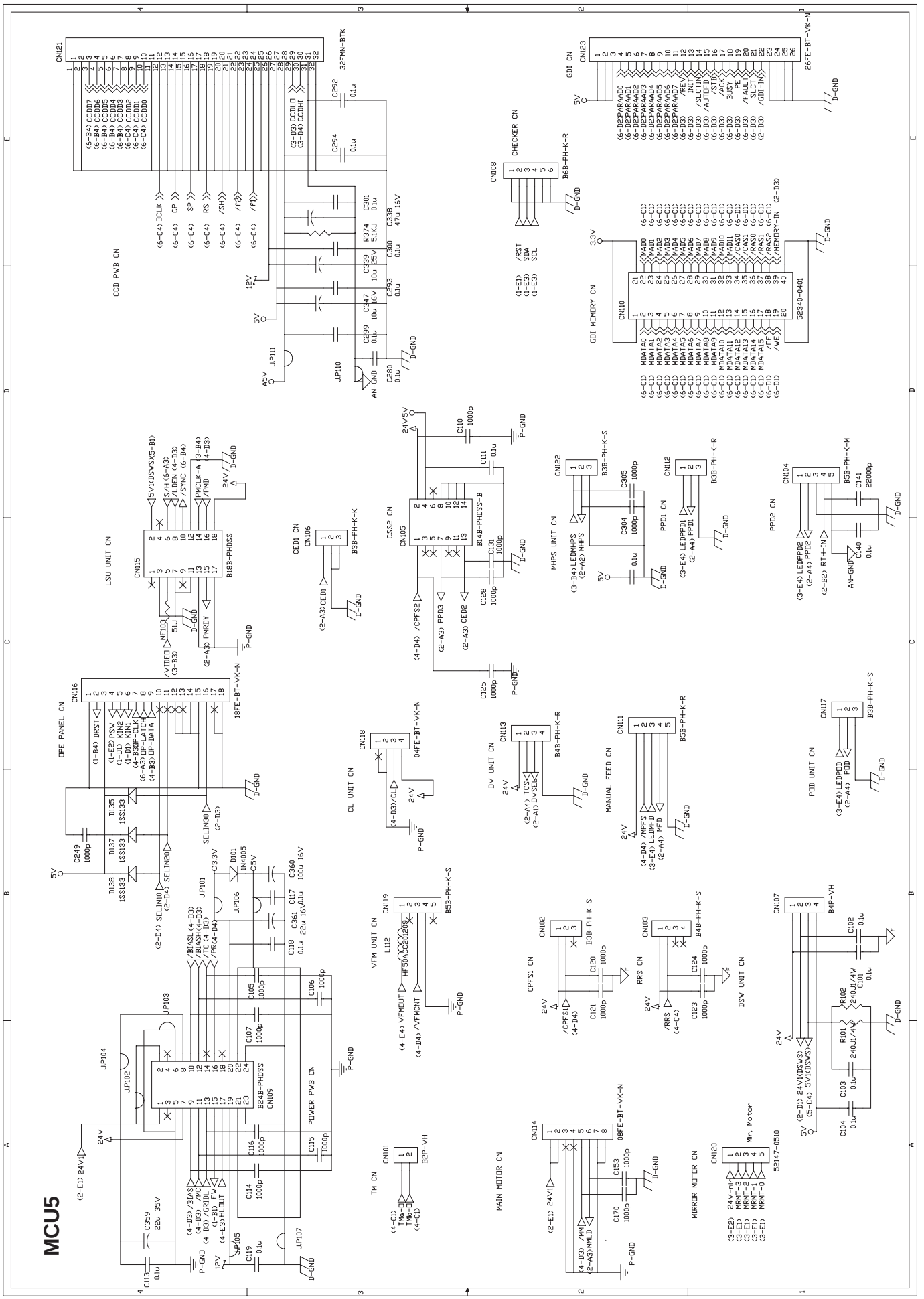

MCU1

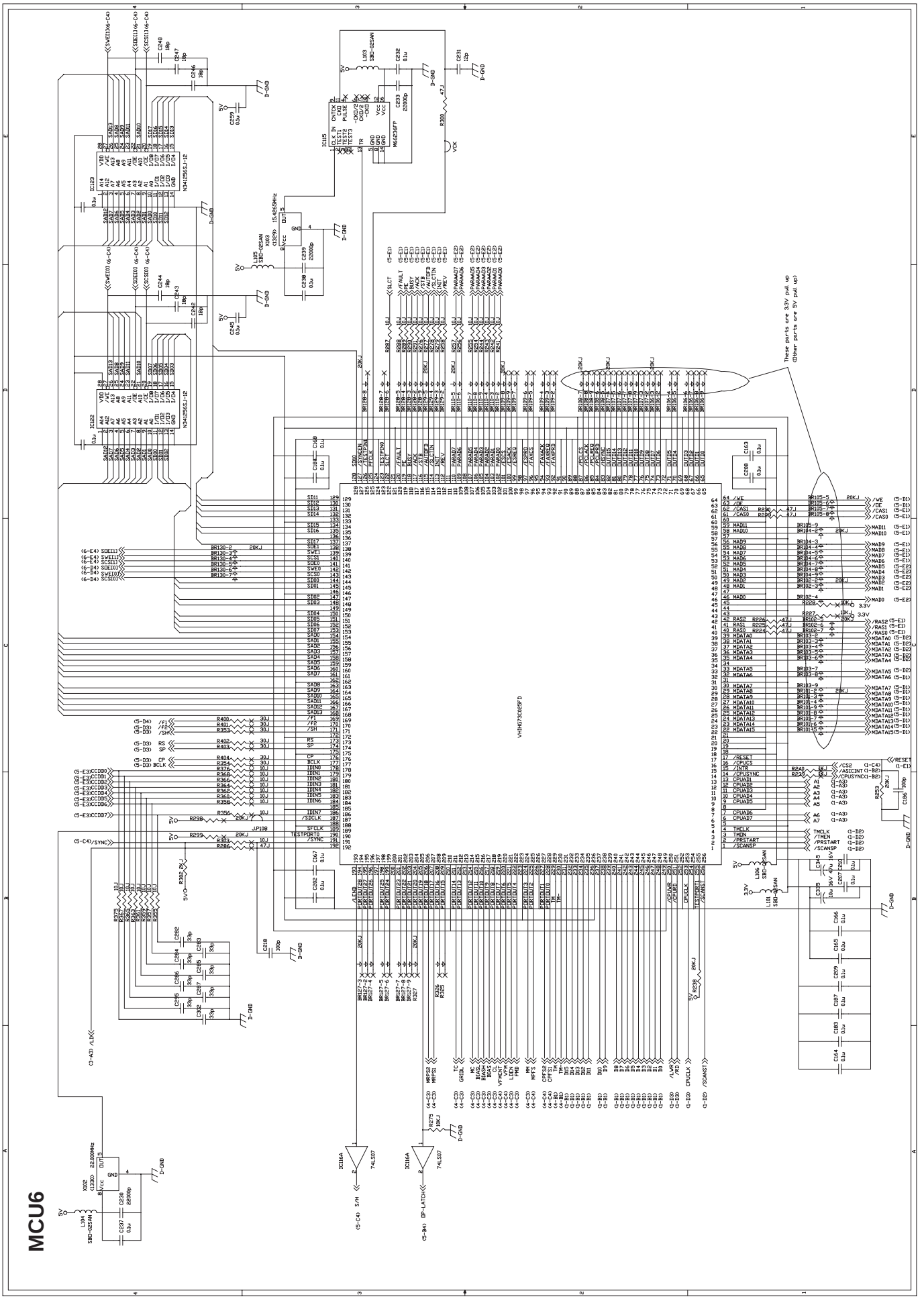
MCU2

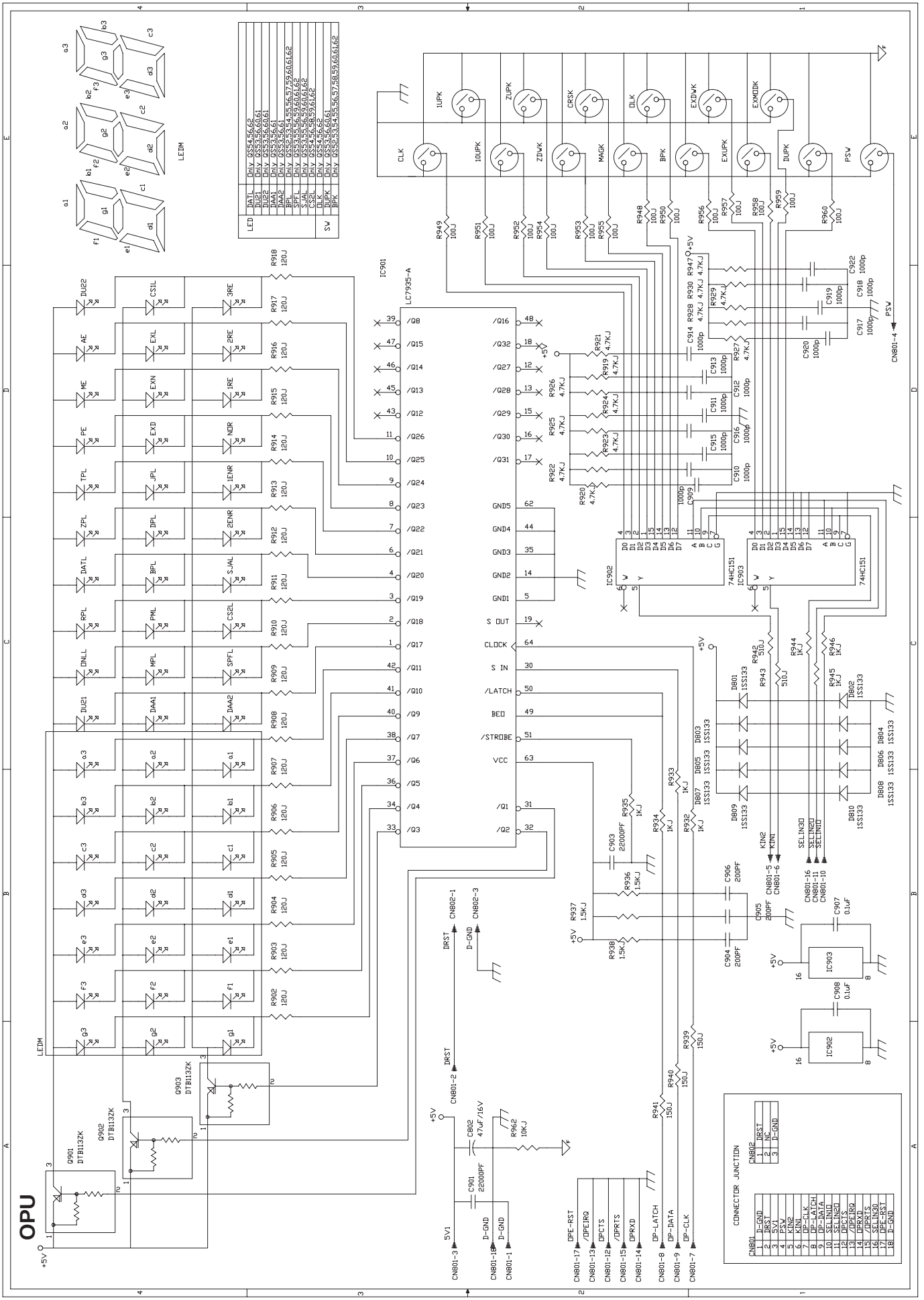



MCU3
SLA7027MU
HF50ACC201209
74LS07
74VHC08
LM358
NJM3414A
SLA7027MU

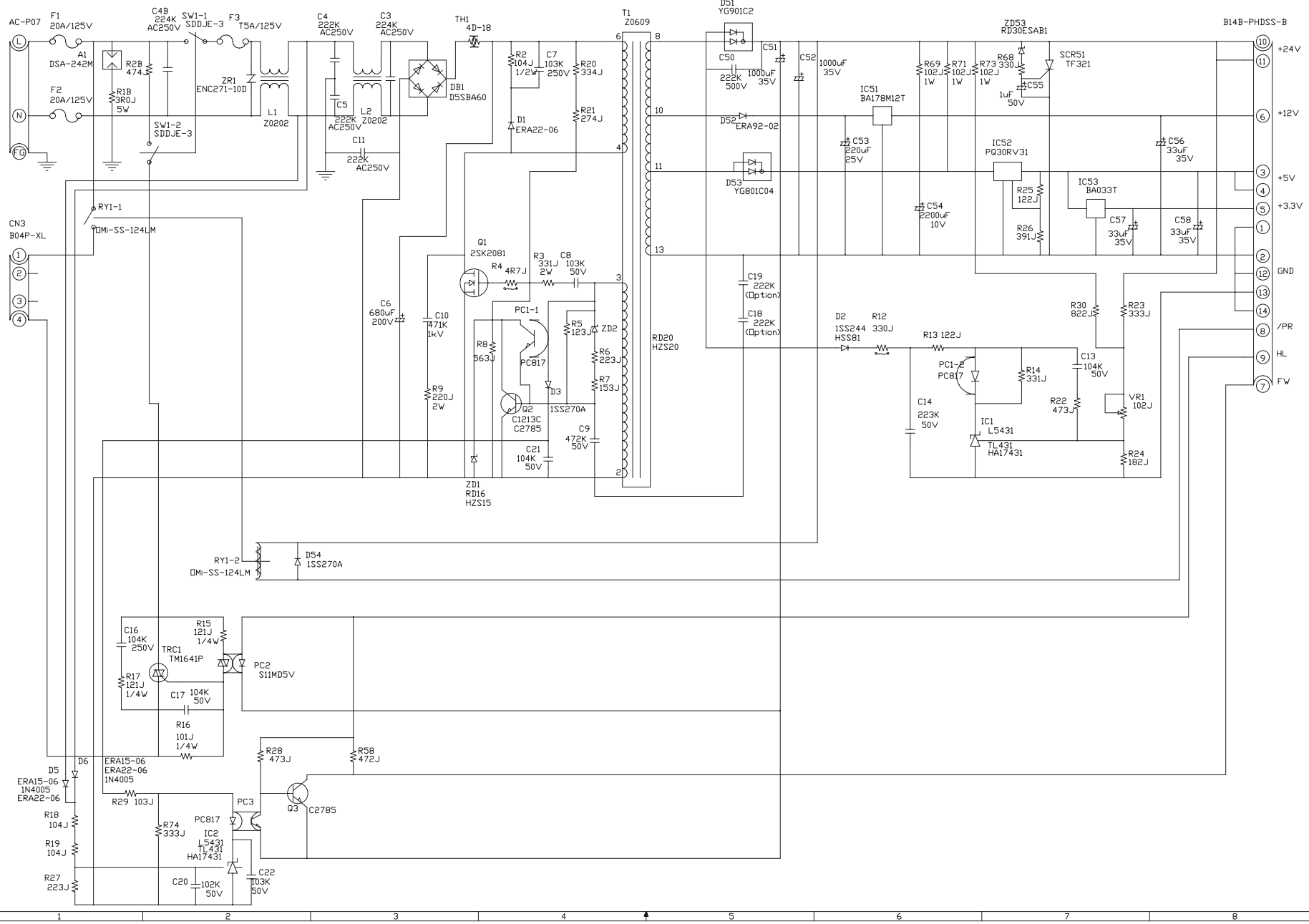

MCU4
IC103
ULN-2003A
IC104
ULN-2003A
IC114
TD62503F
Q103
2SA1036K
Q104
DTA143XKA
R107
4.7KJ/4W
R112
120J/4W
R207
47KJ
/CPFS1(5-B2)
/CPFS2(5-C3)
/MPFS (5-B2)
/VFMCNT (5-B2)
/PRS (5-B3)
/PR (5-A4)
24V
/VFM
VFMOUT (5-B3)
/BIASL(5-A4)
/BIASH(5-A4)
/TC (5-A4)
/GRIDL(5-A4)
/MC (5-A4)
/BIAS (5-A4)
/CL (5-B3)
/MM (5-A2)
/MRPS1(3-B1)
/MRPS2(3-B1)
/PMD (5-C4)
/LDEN (5-C4)
/FTH
HLDOUT (5-A4)
(6-A2) CPFS1
(6-A2) CPFS2
(6-A2) MPFS
(6-A2) VFM
(6-A2) VFMCNT
(1-D3) PRS
(1-D3) PR
P-GND
(6-A2) BIASL
(6-A2) BIASH
(6-A3) TC
(6-A3) GRIDL
(6-A2) MC
(6-A2) BIAS
(6-A2) CL
(6-A2) MM
(6-A3) MRPS1
(6-A3) MRPS2
(6-A2) PMD
(6-A2) LDEN
(1-D2) HL
(2-C2) FTH
D-GND
IC113D
74LS07
IC113E
74LS07
IC113F
74LS07
IC116A
74LS07
IC116C
74LS07
IC116D
74LS07
(1-C1) (DP-CLK)
DP-CLK (5-C4)
(DP-DATA)
(1-C1)
DP-DATA (5-C4)
IC108B
74VHC08
IC108C
74VHC08
IC101
TA7291S
C109
2200Dp
C122
2200p
C362
0.47u
C334
10u 35V
R105
4.7KJ/4W
R202
47KJ
R203
4.7KJ
R201
47KJ
R208
47KJ
D106
1SS133
D107
1SS133
Q101
2SA1036K
Q102
DTC114EK
5V
24V
50V
/PWOFF (1-C1)
TMa-D(5-A3)
TMb-D(5-A3)
(6-A2) TM+
(6-A2) TM-


MCU5
CCD PWB CN
CN121
32FMN-BTK
LSU UNIT CN
CN115
B18B-PHDSS
18FE-BT-VK-N
DPE PANEL CN
CN116
GDI CN
CN123
26FE-BT-VK-N
GDI MEMORY CN
CN110
52340-0401
CHECKER CN
CN108
B6B-PH-K-R
CEDI CN
CN106
B3B-PH-K
CSS2 CN
CN105
B14B-PHDSS-B
MHPS UNIT CN
CN122
B3B-PH-K-S
PPD1 CN
CN112
B3B-PH-K-R
PPD2 CN
CN104
B5B-PH-K-M
CL UNIT CN
CN118
04FE-BT-VK-N
DV UNIT CN
CN113
B4B-PH-K-R
MANUAL FEED CN
CN111
B5B-PH-K-R
PDD UNIT CN
CN117
B3B-PH-K-S
VFM UNIT CN
CN119
B5B-PH-K-S
CPFS1 CN
CN102
B3B-PH-K-S
RRS CN
CN103
B4B-PH-K-S
DSW UNIT CN
CN107
B4P-VH
TM CN
CN101
B2P-VH
MAIN MOTOR CN
CN114
08FE-BT-VK-N
MIRROR MOTOR CN
CN120
52147-0510
Mr, Motor
POWER PWB CN
CN109
B24B-PHDSS
JP101
JP102
JP103
JP104
JP105
JP106
JP107
JP110
JP111
L112
HF50ACC201209
D101
1N4005
D135
D137
D138
1SS133
R374
5.1KJ
R101
R102
240J/4W
NF103
5J
C113
C249
C292
C294
C300
C301
C338
C339
C347
C359
C360
C361
C493
C499
C101
C102
C103
C104
C105
C106
C107
C110
C111
C114
C115
C116
C117
C118
C119
C120
C121
C123
C124
C125
C128
C131
C140
C141
C153
C170
C280
C305
C304
0.1u
1000p
10u 16V
22u 35V
47u 16V
100u 16V
2200p
5V
12V
24V
A5V
3.3V
P-GND
D-GND
AN-GND
F
SELIN30
SELIN20
SELIN10
/VIDEO
PMRDY
/RST
SDA
SCL
/MEMORY-IN
/RAS0
/RAS1
/RAS2
/CAS0
/CAS1
/WE
/OE
MDATA0
MDATA1
MDATA2
MDATA3
MDATA4
MDATA5
MDATA6
MDATA7
MDATA8
MDATA9
MDATA10
MDATA11
MDATA12
MDATA13
MDATA14
MDATA15
BCLK
CP
SP
RS
/SH
/F2
/F1
/BIASL
/BIASH
/IC
/PR
/BIAS
/MC
/GRIDL
/GRIDH
/MLDUT
/MM
MMLD
MRMT-2
MRMT-3
MRMT-1
MRMT-0
TMP-OUT
TMP-GND
/VFMDUT
/VFMCNT
/CPFS1
/RRS
/MPFS
TCS
DVSEL
/CPFS2
PPID3
CEDI2
/VIDEO
/LDEN
/SYNC
/PMD
/PMCLK
/DRST
/DSW
/KIN2
/KIN1
/DP-CLK
/DP-LATCH
/DP-DATA
CCDD7
CCDD6
CCDD5
CCDD4
CCDD3
CCDD2
CCDD1
CCDD0
CCDLD
CCDHI
/RST
SDA
SCL
/PARAD0
/PARAD1
/PARAD2
/PARAD3
/PARAD4
/PARAD5
/PARAD6
/PARAD7
/INIT
/SLCTIN
/AUTOFD
/STB
/ACK
BUSY
PE
/FAULT
SLCT
/GDI-IN
LEDPPD2
PPD2
RTH-IN
LEDMHPS
MHPS
LEDPPD1
PPD1
LEDMFD
MFD
LEDPPDD
PDD
24V1
5V1(DSW5)
5V1(DSW5-B)

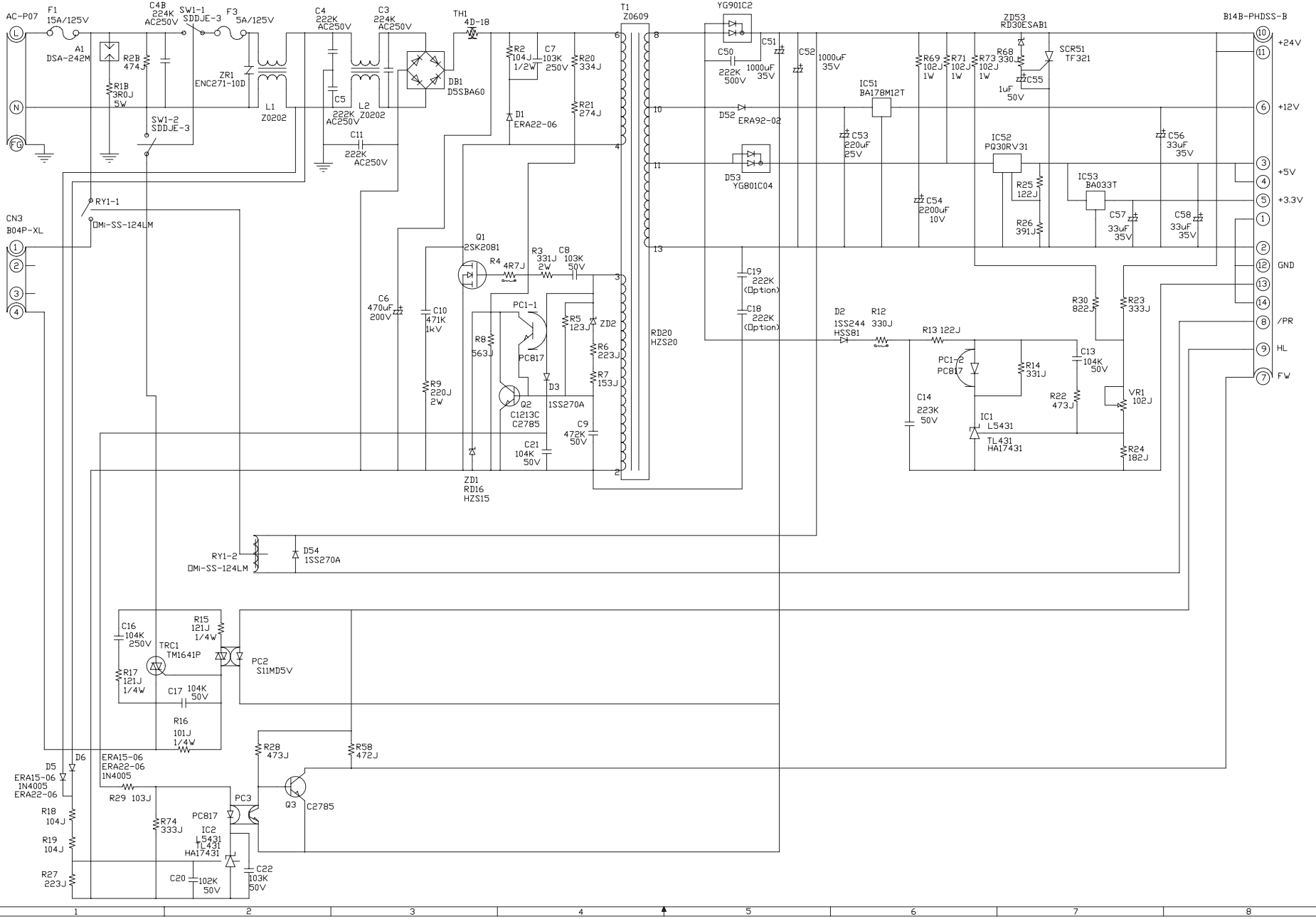

MCU6
These parts are 3.3V pull up
(Other parts are 5V pull up)
VHDHG73G65FD
X102
22.000MHz
IC116A
74LS07
IC115
M66436FP
15.4265MHz
IC122
IC123
N341256SJ-12
L101
L102
L103
L104
L105
L106
SBD-025AN
SBD-025AM
/RESET
/CPUCS
/INTR
/CPUSYNC
CPUAD1
CPUAD2
CPUAD3
CPUAD4
CPUAD5
CPUAD6
CPUAD7
TMCLK
/TMEN
/PRSTART
/SCANSP
/RAS1
/RAS2
/RAS3
/WE
/OE
/CAS1
/CAS0
MDATA0
MDATA1
MDATA2
MDATA3
MDATA4
MDATA5
MDATA6
MDATA7
MDATA8
MDATA9
MDATA10
MDATA11
MDATA12
MDATA13
MDATA14
MDATA15
MAD0
MAD1
MAD2
MAD3
MAD4
MAD5
MAD6
MAD7
MAD8
MAD9
MAD10
MAD11
/SCANOUT
CPUCLK
/CPUWR
/CPURD
/CPUCLK
/SCANIN
/CPUSYNC
/LDK
S/H
DP-LATCH
/SWE1(6-C4)
/SDE1(6-C4)
/SCS1(6-C4)
/SWE0(6-C4)
/SDE0(6-C4)
/SCS0(6-C4)
D-GND
5V
3.3V


OPU
LEDM
IC901
LC7935-A
74HC151
IC902
IC903
CONNECTOR JUNCTION
CN801
CN802
1UPK
ZUPK
CRSK
DLK
EXWVK
EXMDDK
CLK
10UPK
ZDWK
MAGK
BPK
EXUPK
DUPK
PSW
+5V
D-GND
DRST
5V1
/DPEIRQ
/DPCTS
/DPRTS
/DPRXD
DP-LATCH
DP-DATA
DP-CLK
DPE-RST
KIN2
KIN1
SELIN3D
SELIN2D
SELIN1D

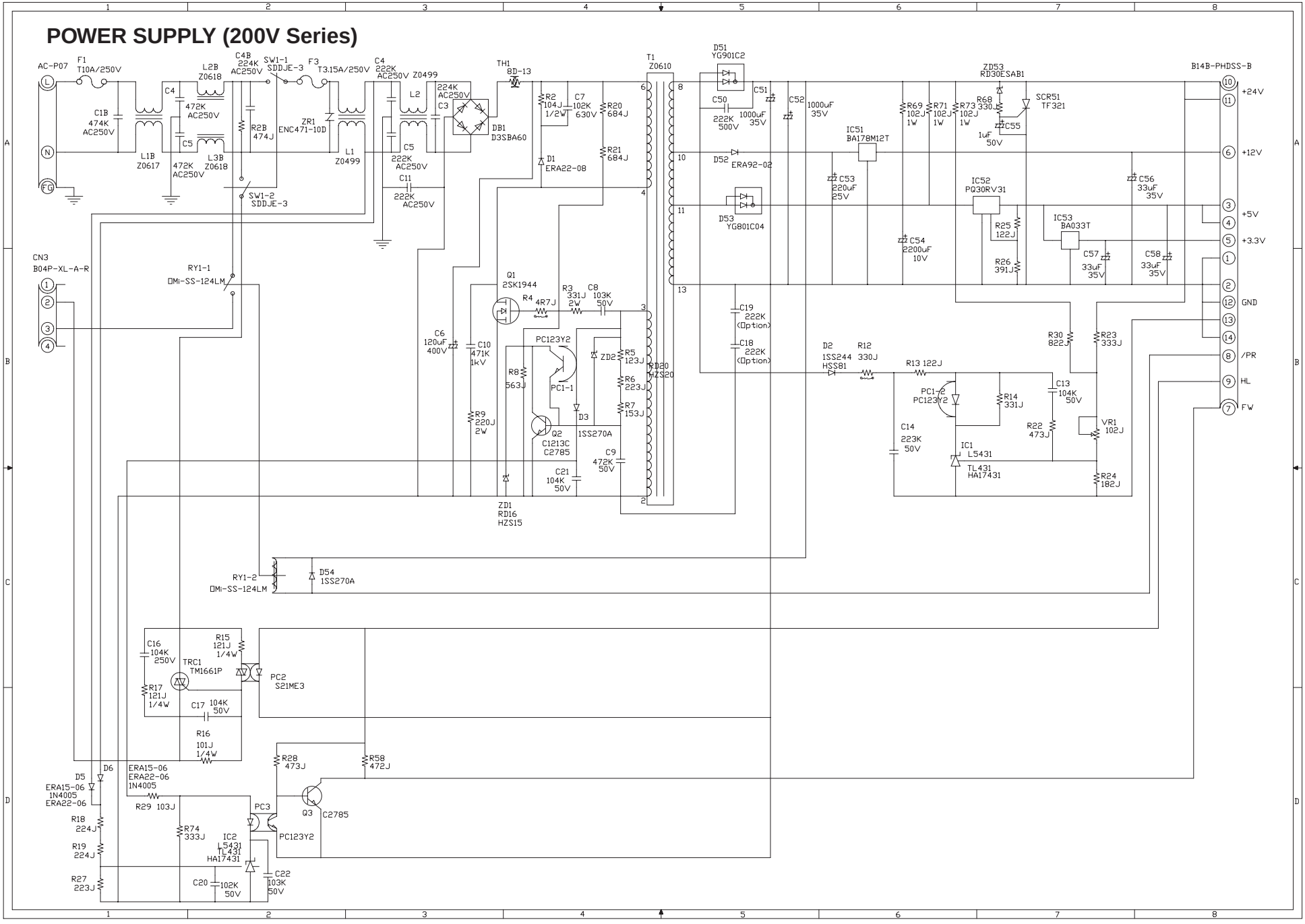
POWER SUPPLY (100V/110V)



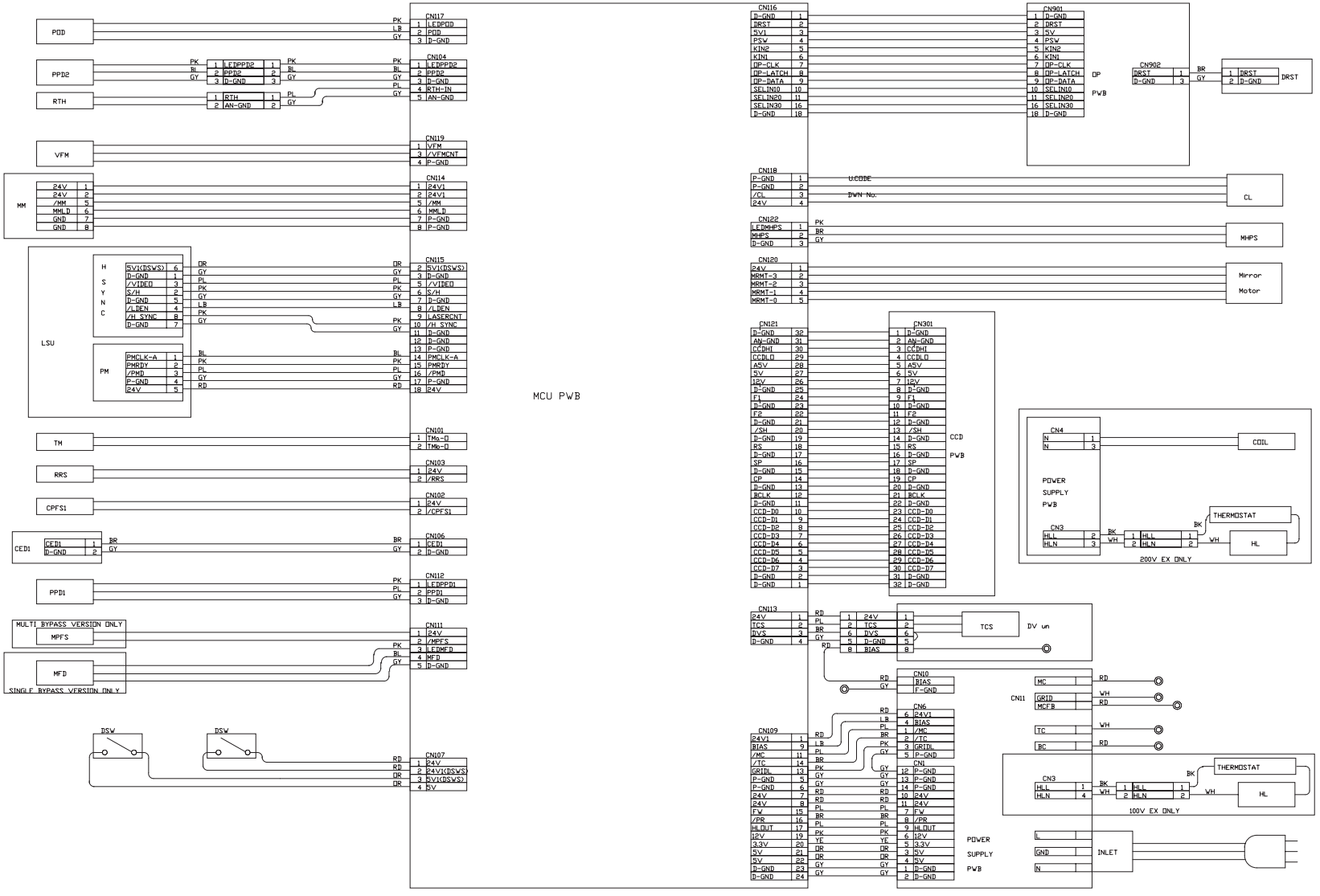
POWER SUPPLY (120V/127V)



POWER SUPPLY (200V Series)



ACTUAL WIRING DIAGRAM



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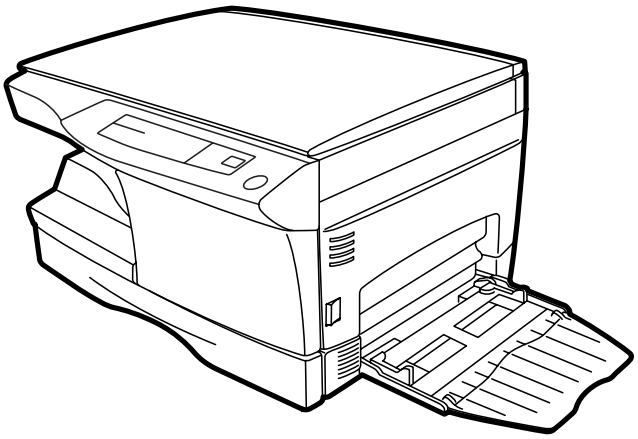
SHARP PARTS GUIDE

CODE:00ZAL1200/P1/



DIGITAL COPIER

AL-1000(Except Japan)
AL-1001(Japan only)
MODEL AL-1200

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SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

DEFINITION

The definition of each Rank is as follows and also noted in the list

A : Parts necessary to be stocked as High usage parts.

B : Parts necessary to be stocked as Standard usage parts.

C : Low usage parts.

D : Parts necessary for refurbish.

E : Unit parts recommended to be stocked for efficient after sales service.
Please note that the lead time for the said parts may be longer than normal parts.

S : Consumable parts.

Please note that the following parts used in Copier under the same description are classified into A or B Rank depending upon the place used.

Example : Gear made of Metal, Sprocket, Bearing, Belt made of Rubber, Spring clutch mechanism.

A Rank : The parts which may be with the revolution or loading.

B Rank : Parts similar to A Rank parts, but are not included in Rank A.

Because parts marked with "⚠" is indispensable for the machine safety maintenance and operation, it must be replaced with the parts specific to the product specification.

○ Other than this Parts Guide, please refer to documents Service Manual (including Circuit Diagram) of this model.

○ Please use the 13 digit code described in the right hand corner of front cover of the document, when you place an order.

○ For U.S. only-Use order codes provided in advertising literature. Do not order from parts department.

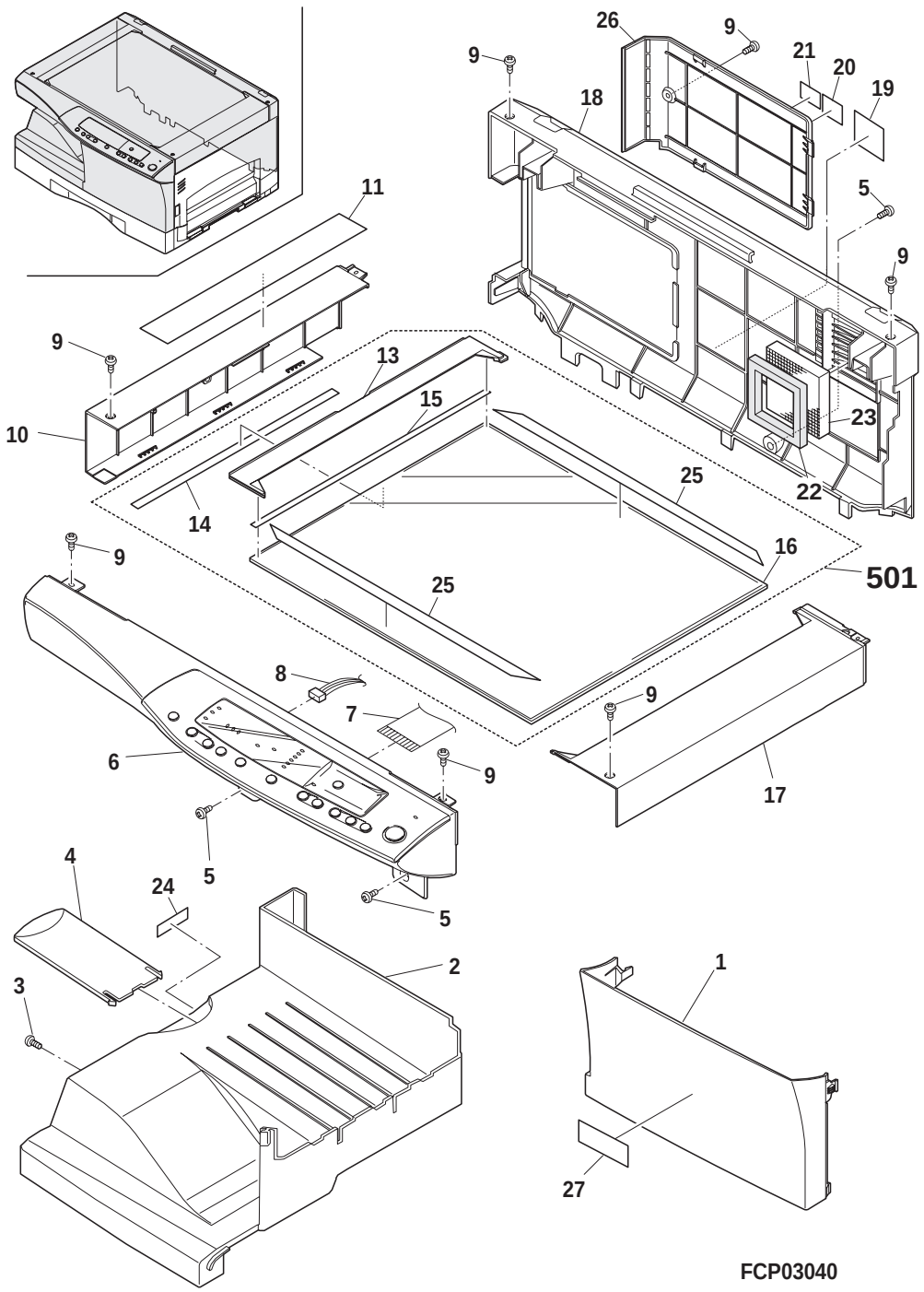
1 Exteriors

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ex.	Ja.				
1	CCAB-0003QS01	AR	EQ	N	D	Front cover (Japan only)	
	GCAB-0003QSZA	AS	EZ	N	D	Front cover (For Europe)	
	GCAB-0003QSZZ	AP	EQ	N	D	Front cover (Except Europe,Japan)	
2	LSŌU-0001QSZZ	AW	FG	N	D	Delivery tray (Except Europe)	
	LSŌU-0001QSZA	AX	FG	N	D	Delivery tray (For Europe)	
3	XEBSE30P08000	AA	DD		C	Screw (3×8)	
4	LSŌU-0008QSZZ	AH	DX	N	D	Extension tray (Except Europe)	
	LSŌU-0008QSZA	AH	DX	N	D	Extension tray (For Europe)	
5	XEBSE40P12000	AA	DD		C	Screw (4×12)	
6	CPNLC0002QS03	AV	FG	N	D	Operation panel (Except Europe)	(AL-1000)
	CPNLC0002QS04	AW	FG	N	D	Operation panel (For Europe)	(AL-1000)
	CPNLC0002QS01	AV	FG	N	D	Operation panel (Japan only)	(AL-1001)
	CPNLC0002QS08	AW	FG	N	D	Operation panel (For Europe)	(AL-1200)
	CPNLC0002QS07	AV	FG	N	D	Operation panel (Except Europe)	(AL-1200)
7	DHAi-0040QSZZ	AK	DX	N	C	OP harness	
8	DHAi-0049QSZZ	AG	DS	N	C	D-RST harness	
9	XBBSE30P08000	AA	DD		C	Screw (3×8)	
10	GCAB-0005QSZZ	AN	EG	N	D	Left exterior (Except Europe)	
	GCAB-0005QSZA	AN	EQ	N	D	Left exterior (For Europe)	
11	TLABH0056QSZZ	AG	DX	N	C	Operation instruction label	
13	CFiX-0003QS01	AN	EG	N	C	Glass fixing plate (Japan only)	
	CFiX-0003QS04	AN	EG	N	C	Glass fixing plate (For Europe)	
	CFiX-0003QS02	AN	EG	N	C	Glass fixing plate (Except Europe,Japan)	
14	PSHEZ0026QSZZ	AE	DJ	N	C	Sheet	
15	PSHEZ0027QSZZ	AC	DJ	N	C	Table glass fixing sheet	
16	PGLSP0001QSZZ	AX	FG	N	B	Table glass	
17	GCAB-0006QSZZ	AN	EQ	N	D	Right exterior (Except Europe)	
	GCAB-0006QSZA	AN	EQ	N	D	Right exterior (For Europe)	
18	GCAB-0021QSZZ	AY	FQ	N	D	Rear exterior (Except Europe)	
	GCAB-0021QSZA	AY	FQ	N	D	Rear exterior (For Europe)	
19	TCAUA0770FCZZ	AB	DD		C	Service caution label (Except Japan)	

1 Exteriors

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
20	TLABZ0058QSZZ	AD	DJ	N	C	Class 1 label (For Europe,Australia)
21	TLABH0264GCZZ	AC	DJ		C	Service man label (For Europe)
22	PMLT-0024QSZZ	AC	DJ	N	C	Fan cushion
23	PFiLZ0002QSZZ	AL	EB	N	B	Ozone filter
24	TLABH0055QSZZ	AE	DS	N	C	Power supply label (Japan only)
25	PSHEZ0079QSZZ	AD	DJ	N	C	Table glass sheet
26	PCOVP0035QSZZ	AL	EB	N	D	Rear exterior cover (Except Europe)
	PCOVP0035QSZA	AL	EB	N	D	Rear exterior cover (For Europe)
27	TLABM0067QSZZ	AD	DJ	N	C	Digital mark label (USA only)
501	CFiX-0003QS51	AZ	FQ	N	E	Table unit (Japan only)
	CFiX-0003QS54	BA	FX	N	E	Table unit (For Europe)
	CFiX-0003QS52	BA	FX	N	E	Table unit (Except Europe,Japan)

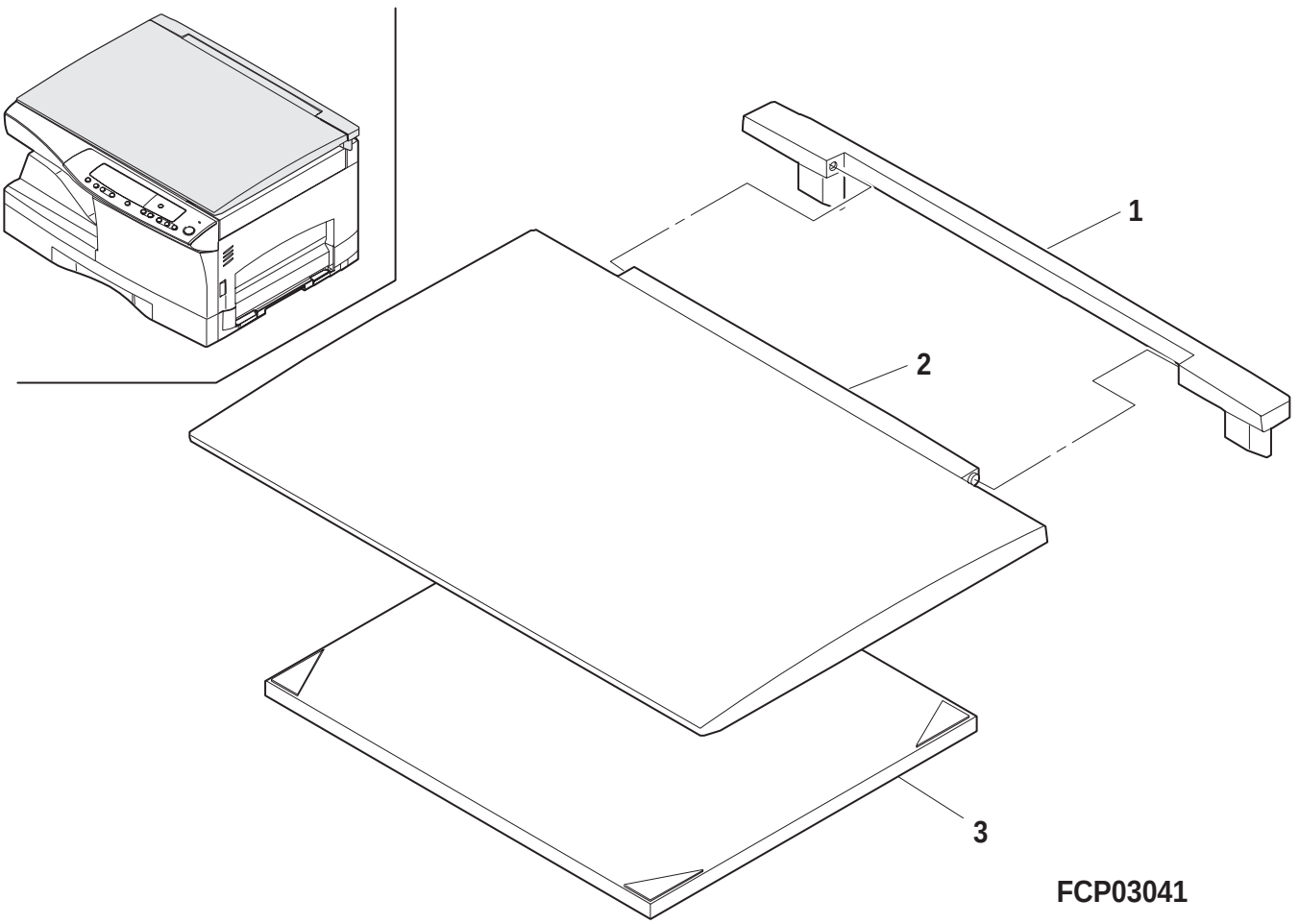
1 Exteriors



2 Original cover unit

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	GCOVH0003QSZZ	AM	EG	N	D	OC cover S
2	GCOVH0004QSZZ	AX	FG	N	D	OC cover M
3	PSHEZ0034QSZZ	AV	FG	N	C	OC sheet
	(Unit)					
901	CCOVH0004QS51	BC	GD	N	E	OC cover unit

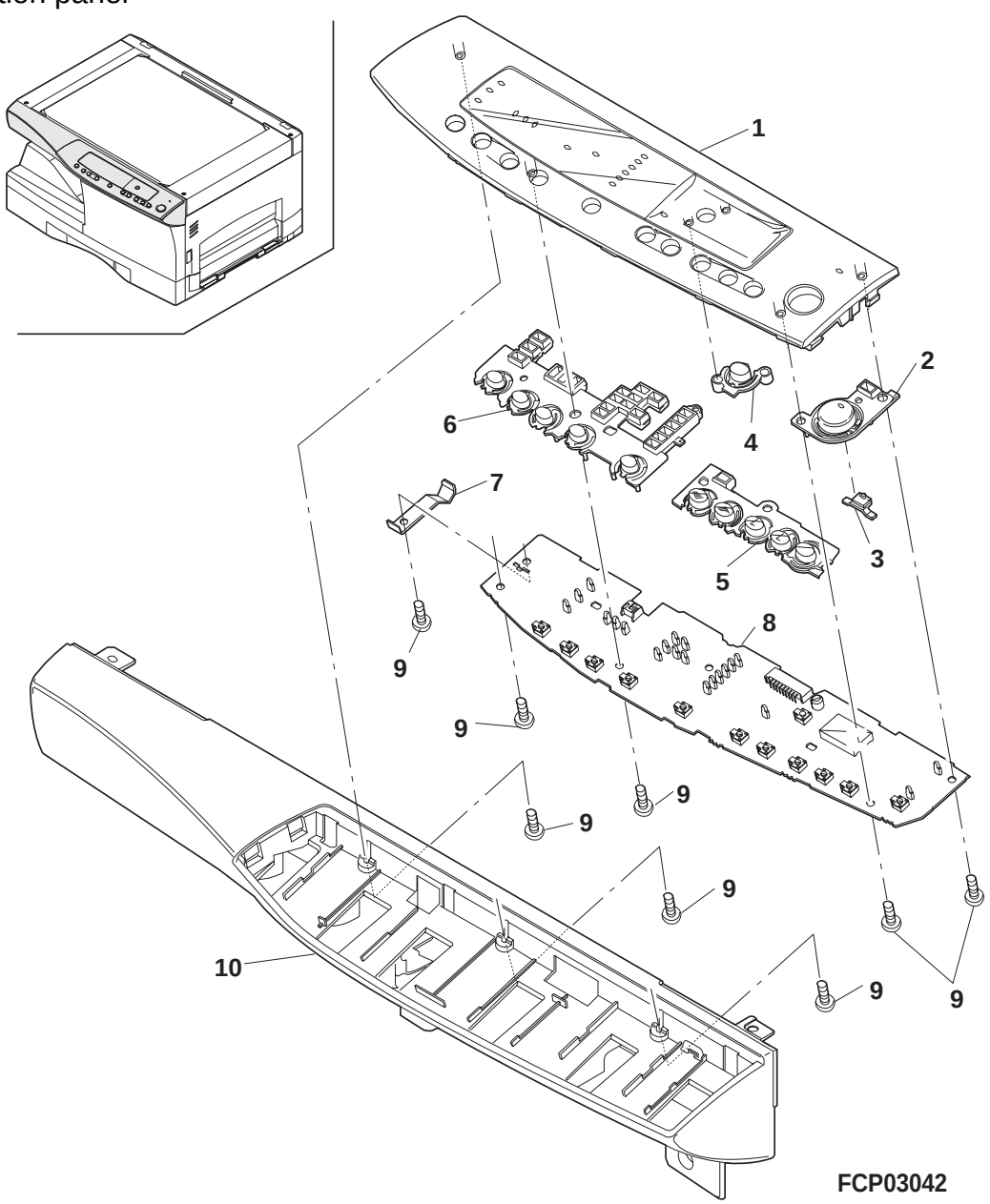
2 Original cover unit



3 Operation panel

NO.	PARTS CODE	PRICE RANK Ex.	PRICE RANK Ja.	NEW MARK	PART RANK	DESCRIPTION	
1	PFiLZ0001QS12	AS	EQ	N	B	Filter (Inch series)	(AL-1000)
	PFiLZ0001QSZ5	AS	EQ	N	B	Filter (AB series)	(AL-1000)
	PFiLZ0001QSZ6	AS	EQ	N	B	Filter (Japan only)	(AL-1001/AL-1200)
	PFiLZ0001QS18	AS	EQ	N	B	Filter (Inch series)	(AL-1200)
	PFiLZ0001QSZ2	AS	EQ	N	B	Filter (AB series)	(AL-1200)
2	CBTN-0009QS01	AG	DS	N	C	Copy key	
3	JBTN-0010QSZZ	AC	DJ	N	C	Copy key smoke	
4	JBTN-0005QSZZ	AC	DJ	N	C	Percent key	
5	CBTN-0004QS01	AE	DS	N	C	Operation key R	
6	JBTN-0008QSZZ	AD	DJ	N	C	Operation key L	
7	MSPRP0015QSZZ	AC	DJ	N	C	Operation PWB earth spring	
8	CPWBF0014QS51	BR	LX	N	E	Operation PWB	(AL-1000)
	CPWBF0014QS52	BR	LX	N	E	Operation PWB	(AL-1001/AL-1200)
9	XEBSE30P08000	AA	DD		C	Screw (3×8)	
10	CPNLC0002QS03	AV	FG	N	D	Operation panel (Except Europe)	(AL-1000)
	CPNLC0002QS04	AW	FG	N	D	Operation panel (For Europe)	(AL-1000)
	CPNLC0002QS01	AV	FG	N	D	Operation panel (Japan only)	(AL-1001)
	CPNLC0002QS08	AW	FG	N	D	Operation panel (For Europe)	(AL-1200)
	CPNLC0002QS07	AV	FG	N	D	Operation panel (Except Europe)	(AL-1200)

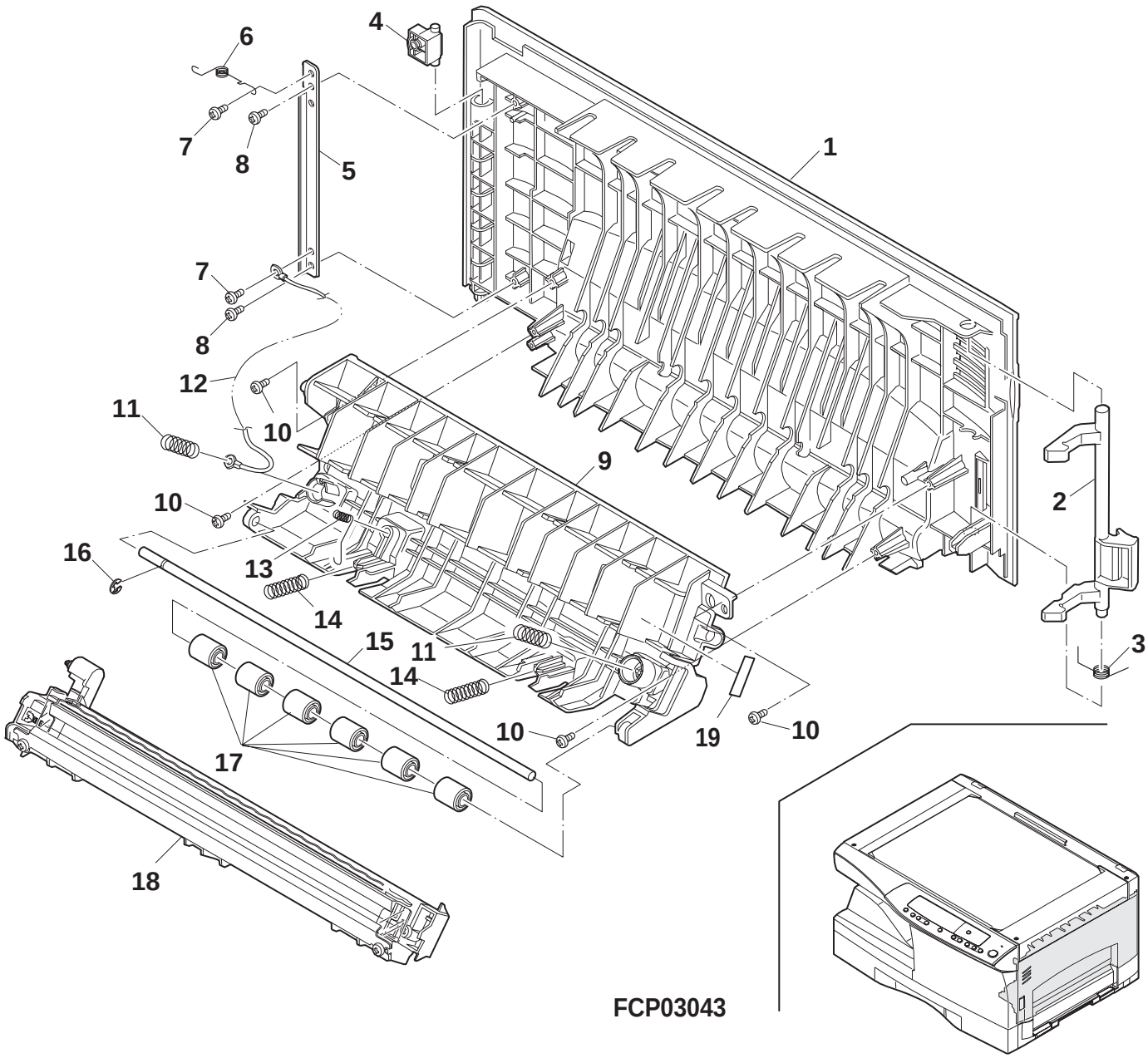
3 Operation panel



4 Side Door unit

NO.	PARTS CODE	PRICE RANK Ex.	PRICE RANK Ja.	NEW MARK	PART RANK	DESCRIPTION
1	GCAB-0007QSZZ	AU	EZ	N	D	Side door (Except Europe)
	GCAB-0007QSZA	AV	FG	N	D	Side door (For Europe)
2	PTME-0004QSZZ	AG	DX	N	C	Lock pawl
3	MSPRT0029QSZZ	AC	DJ	N	C	Lock pawl spring
4	PGiDM0008QSZZ	AD	DJ	N	C	Hinge guide
5	LPLTM0043QSZZ	AD	DJ	N	C	Earth plate
6	MSPRD0076QSZZ	AC	DJ	N	C	Earth spring
7	XHBSE30P06000	AA	DD		C	Screw (3×6)
8	XEBSE30P06000	AA	DD		C	Screw (3×6)
9	LFRM-0003QSZZ	AP	EQ	N	C	Side door inner frame
10	XEBSD30P10000	AA	DD		C	Screw (3×10)
11	MSPRC0032QSZZ	AB	DJ	N	C	Transcription pressure spring
12	DHAi-0047QSZZ	AH	DX	N	C	TCFB harness
13	MSPRC0031QSZZ	AB	DJ	N	C	PS earth spring
14	MSPRC0030QSZZ	AC	DJ	N	C	PS pressure spring
15	NSFTZ0006QSZZ	AG	DX	N	C	PS shaft
16	XRESP30-06000	AA	DD		C	E type ring
17	NRŌLP1122FCZZ	AF	DS		C	PS upper roller
18	CHLDZ0010QS51	AX	FG	N	E	Transcription holder unit
19	TCAUH0819FCZZ	AA	DD		C	HT caution label (Japan only)

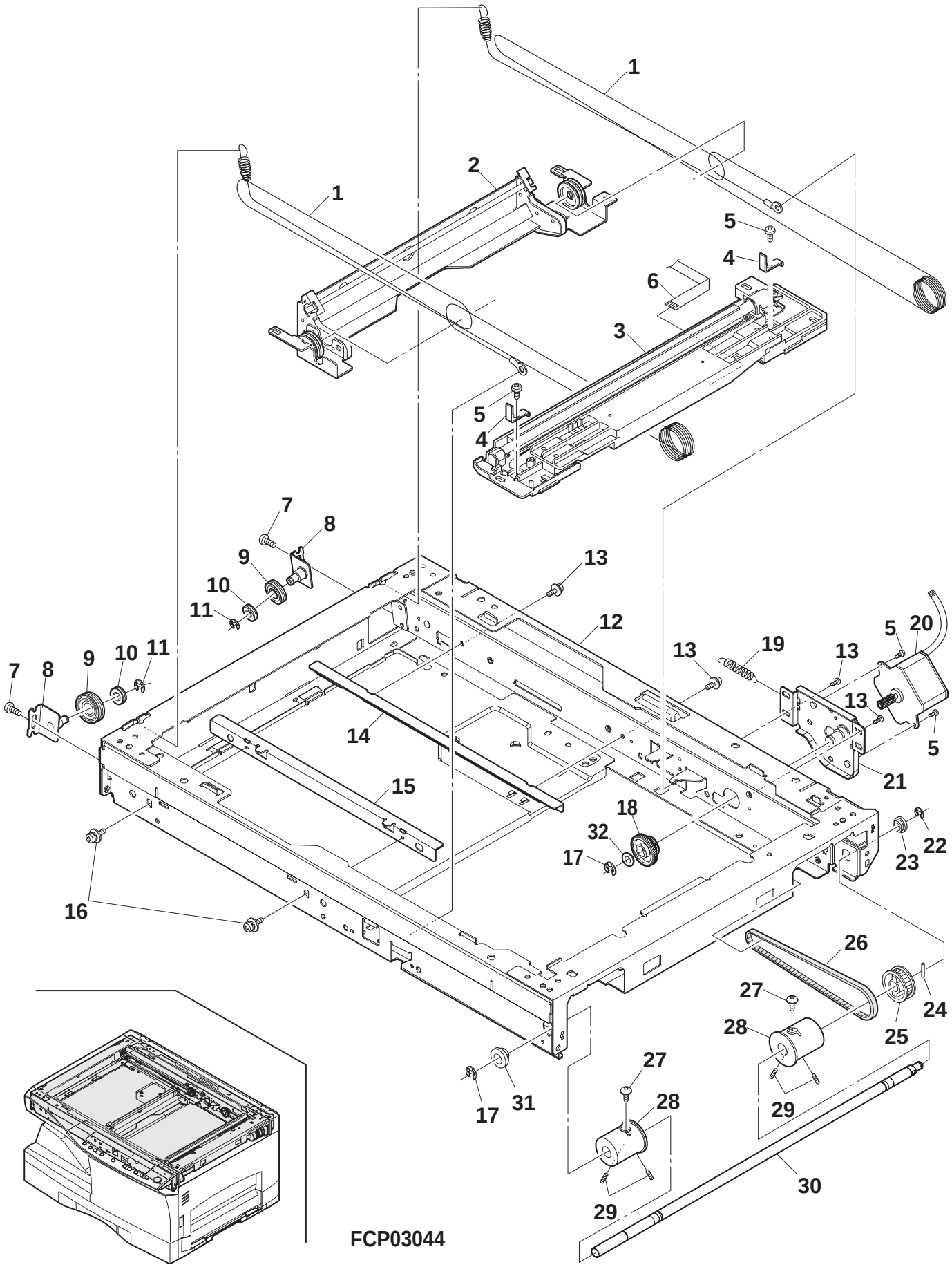
4 Side Door unit



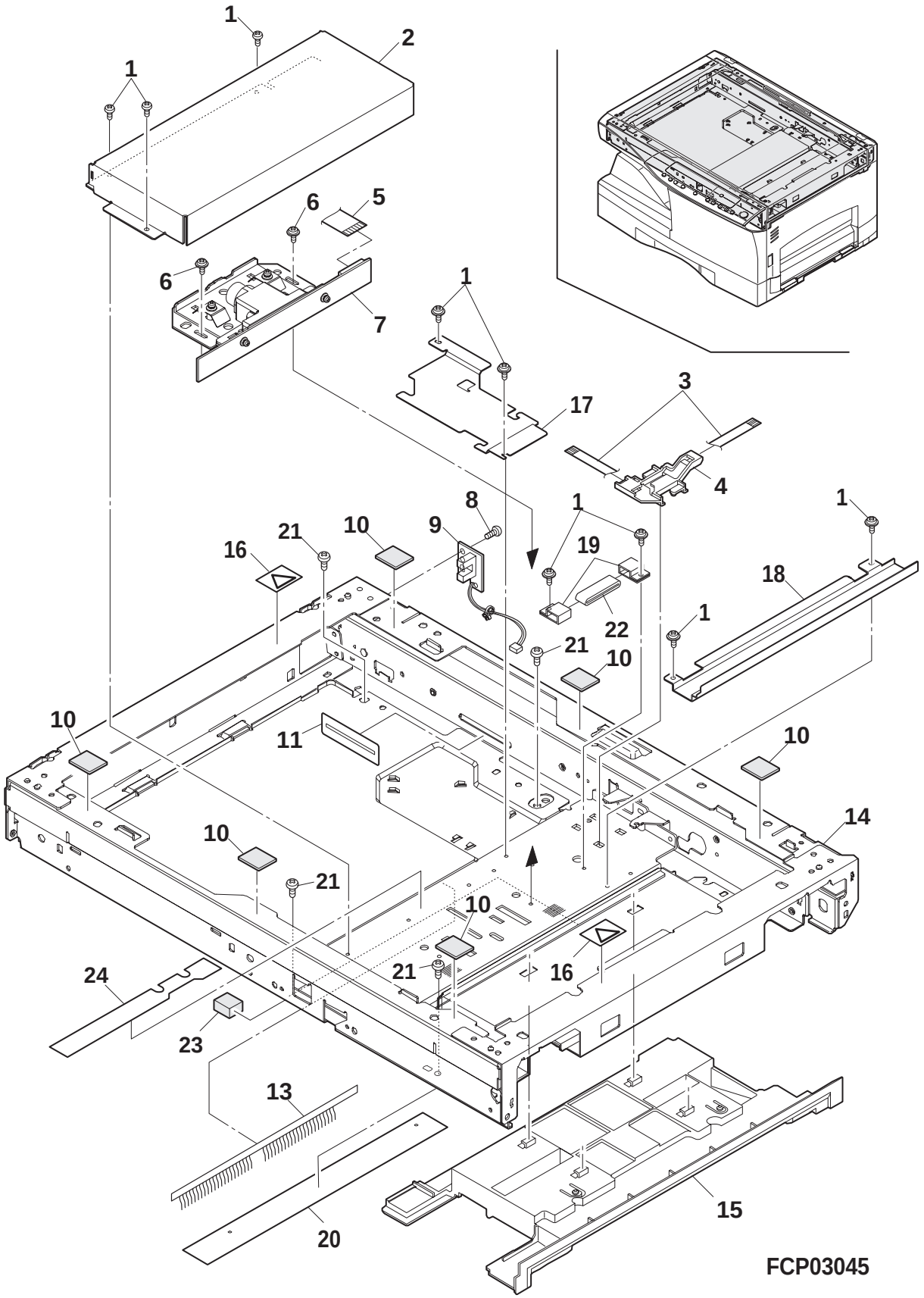
5 Optical Frame 1

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	PWiR-0003QSZZ	AR	EQ	N	C	MB wire
2	CHLDZ0019QS31	BC	GJ	N	E	2nd,3rd mirror holder unit
3	CREFL0003QS31	BQ	LP	N	E	Copy lamp unit
4	LPLTM5111FCZZ	AC	DJ		C	Wire fixing plate
5	XBPSD30P05K00	AA	DD		C	Screw (3×5K)
6	DHAi-0041QSZZ	AF	DS	N	C	CL lead harness
7	LX-BZ0005QSZZ	AA	DD	N	C	Screw
8	CPLTM0026QS01	AH	DX	N	C	Pulley fixing plate F
9	NPLYZ0005QSZZ	AG	DX	N	C	Pulley
10	NPLYZ0006QSZZ	AD	DJ	N	C	L pulley
11	XRESP40-05000	AA	DD		C	E type ring
12	CDAiU0002QS01	BG	GT	N	C	Optical base plate
13	XHBSE30P08000	AA	DD		C	Screw (3×8)
14	LRALM0003QSZZ	AG	DS	N	C	MB-B rail R
15	LRALM0002QSZZ	AF	DS	N	C	MB-B rail F
16	LX-BZ0004QSZZ	AB	DD	N	C	Screw
17	XRESP70-08000	AA	DD		C	E type ring
18	NGERH0027QSZZ	AH	DX	N	C	Mirror motor idle gear
19	MSPRC0040QSZZ	AB	DJ	N	C	MB drive spring
20	RMÖTP0011QSZZ	BA	FX	N	B	Mirror motor
21	CPLTM0025QS01	AH	DX	N	C	Mirror motor fixing plate
22	XRESP50-06000	AA	DD		C	E type ring
23	NBRGC0387FCZ1	AC	DJ		C	Bearing
24	XPSSJ30-12000	AB	DD		C	Spring pin (φ3 12)
25	NPLYZ0004QSZZ	AG	DX	N	C	Winder drive shaft pulley
26	NBLTT0002QSZZ	AH	DX	N	B	Winder drive belt
27	LX-BZ0324FCZZ	AA	DD		C	Screw (3×4)
28	NPLYZ0003QSZZ	AM	EG	N	C	Winder pulley
29	LX-BZ0049FCZZ	AB	DD		C	Screw (4×6)
30	NSFTZ0008QSZZ	AQ	EQ	N	C	Winder drive shaft
31	NBRGC0133FCZ1	AC	DJ		C	PF bearing 8
32	LX-WZ0119FCZZ	AA	DD	N	C	Washer

5 Optical Frame 1



6 Optical Frame 2



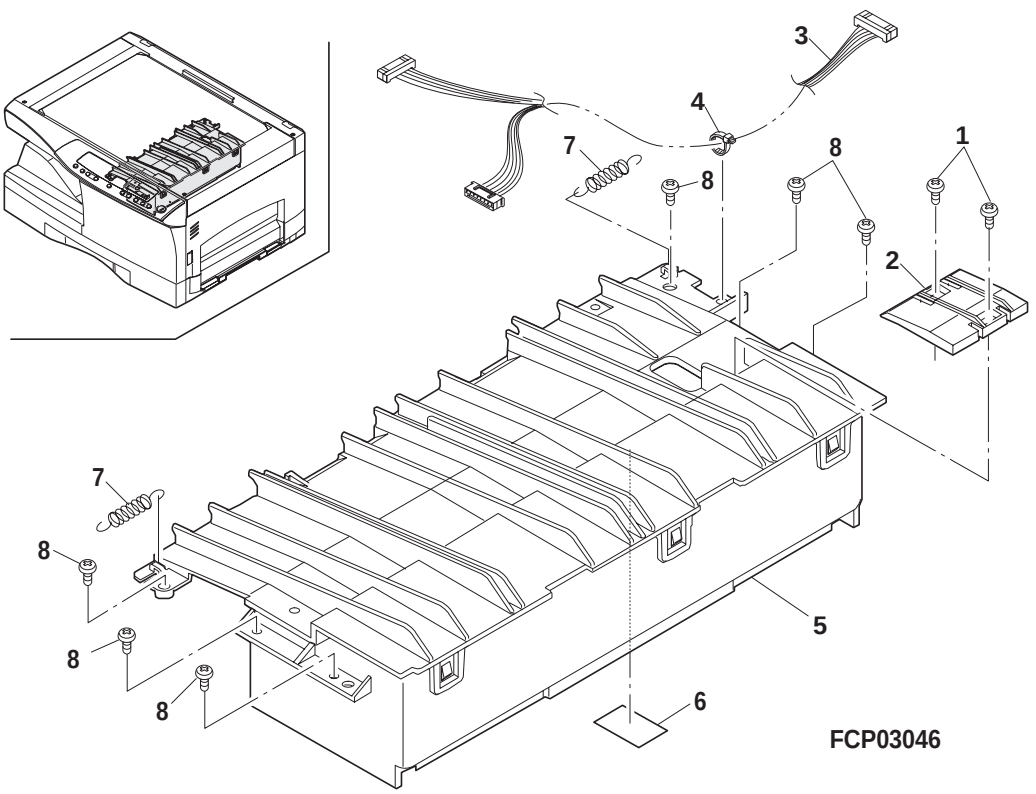
6 Optical Frame 2

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	XHBSE30P08000	AA	DD		C	Screw (3×8)
2	PCASZ0003QSZZ	AK	EB	N	C	Dark box
3	DHAi-0041QSZZ	AF	DS	N	C	CL lead harness
4	LHLDZ0011QSZZ	AD	DJ	N	C	CL lead holder
5	DHAi-0042QSZZ	AK	EB	N	C	ICU-CCD harness
6	LX-BZ0004QSZZ	AB	DD	N	C	Screw
7	CDAiU0008QS51	BC	GJ	N	E	Lens unit
8	XBBSD30P08000	AA	DD		C	Screw (3×8)
9	CPWBF1177FC5A	AG	DX	N	E	MHPS sensor PWB
10	PCUSG0190FCZ1	AB	DJ		C	Table glass cushion
11	PSHEP0042QSZZ	AC	DJ	N	C	Edge protect sheet
13	PBRSR0002QSZZ	AK	DX	N	B	Discharge brush
14	CDAiU0002QS01	BG	GT	N	C	Optical base plate
15	PGiDM0007QSZZ	AP	EQ	N	C	U-turn rib guide upper
16	TCAUH0933FCZZ	AB	DD		C	HT caution label
17	LPLTM0097QSZZ	AE	DS	N	C	CCD harness cover
18	LPLTM0098QSZZ	AE	DJ	N	C	CCD PWB cover
19	LHLDZ7021XCZZ	AD	DJ		C	Ferrite core holder (FRH-12)
20	PSHEZ0066QSZZ	AE	DS	N	C	Lens base plate lower sheet
21	XEBSE40P12000	AA	DD		C	Screw (4×12)
22	RCORF0002QSZZ	AE	DS	N	C	Ferrite core
23	PGSK-1004DCZZ	AF	DJ		C	Gasket
24	PSHEZ0074QSZZ	AE	DS	N	C	Optical protection sheet

7 LSU unit

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	XEBSD30P06000	AA	DD		C	Screw (3×6)
2	PCOVP0028QSZZ	AE	DJ	N	C	LSU harness cover
3	DHAi-0059QSZZ	AQ	EQ	N	C	LSU harness
4	LBNDJ0013FCZ1	AA	DJ		C	Wire band
5	DUNTK0013QSZZ	BU	NU	N	E	LSU unit (A4-600D)
6	PSHEZ0073QSZZ	AC	DJ	N	C	LSU harness sheet
7	MSPRT0019QSZZ	AB	DJ	N	C	Delivery paper guide spring
8	XEBSD30P12000	AA	DD		C	Screw (3×12)

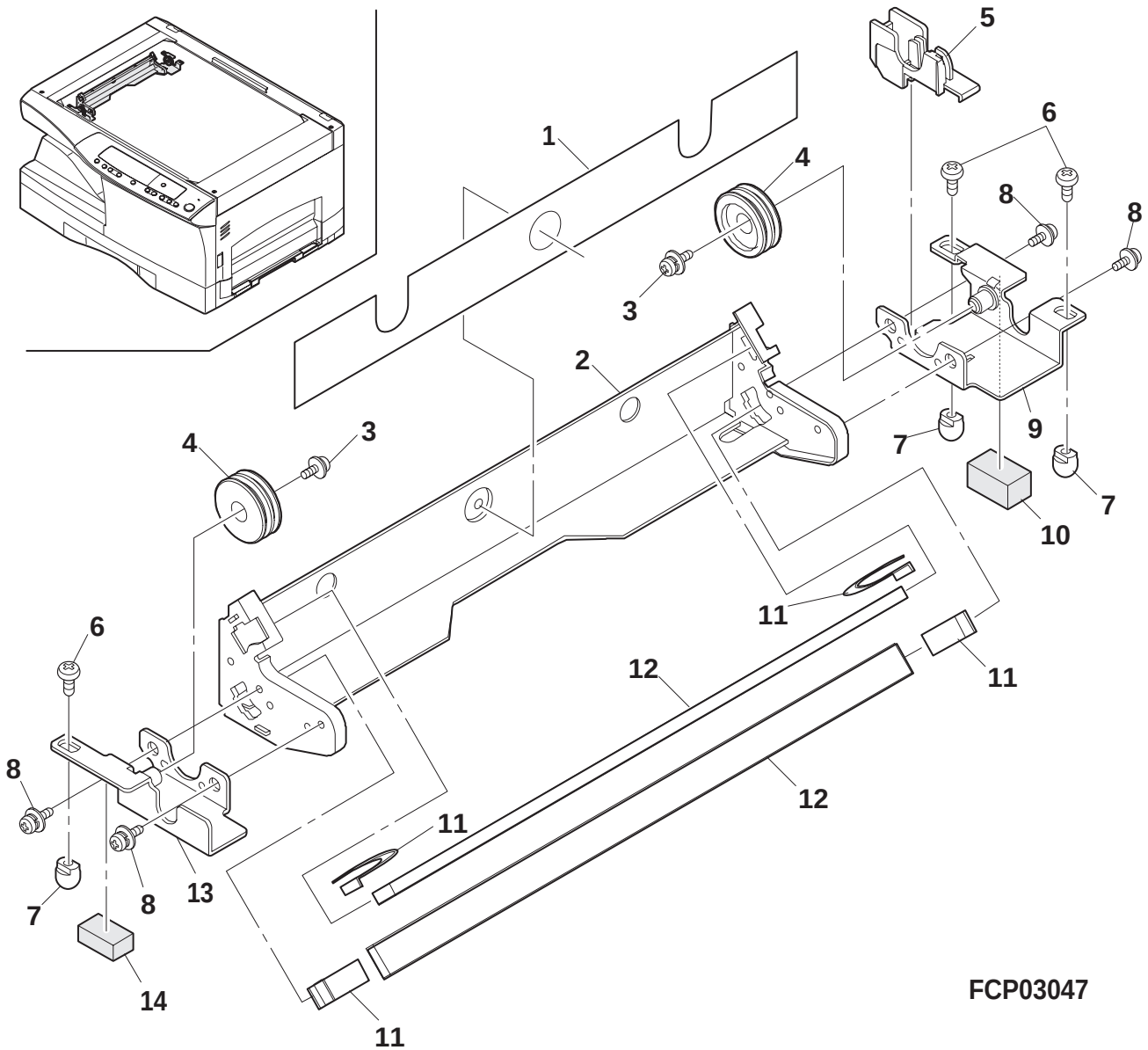
7 LSU unit



8 Mirror Holder unit

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	PSHEZ0048QSZZ	AE	DJ	N	C	Reflector protect sheet
2	LHLDZ0019QSZZ	AN	EG	N	C	2nd,3rd mirror holder
3	XBPSD40P06KS0	AA	DD		C	Screw (4×6KS)
4	NPLYZ0007QSZZ	AG	DX	N	C	W pulley
5	LHLDZ0013QSZZ	AD	DJ	N	C	CL guide holder
6	XEBSD40P06000	AA	DD		C	Screw (4×6)
7	CSLi-0103FC31	AF	DS		E	Slider (4pcs/set)
8	LX-BZ0335FCZZ	AA	DD		C	Screw (4×6)(Red)
9	CPLTM0029QS01	AH	DX	N	C	Pulley fixing plate R
10	PCUSS0009QSZZ	AA	DJ	N	C	MB-B cushion R
11	LFiX-0284FCZZ	AC	DD		C	4th 5th mirror fixing plate F
12	PMiR-0002QSZZ	AN	EQ	N	B	2nd,3rd mirror
13	CPLTM0028QS01	AH	DX	N	C	Pulley fixing plate F
14	PCUSS0201FCZZ	AA	DD		C	MB-B cushion
	(Unit)					
901	CHLDZ0019QS31	BC	GJ	N	E	2nd,3rd mirror holder unit

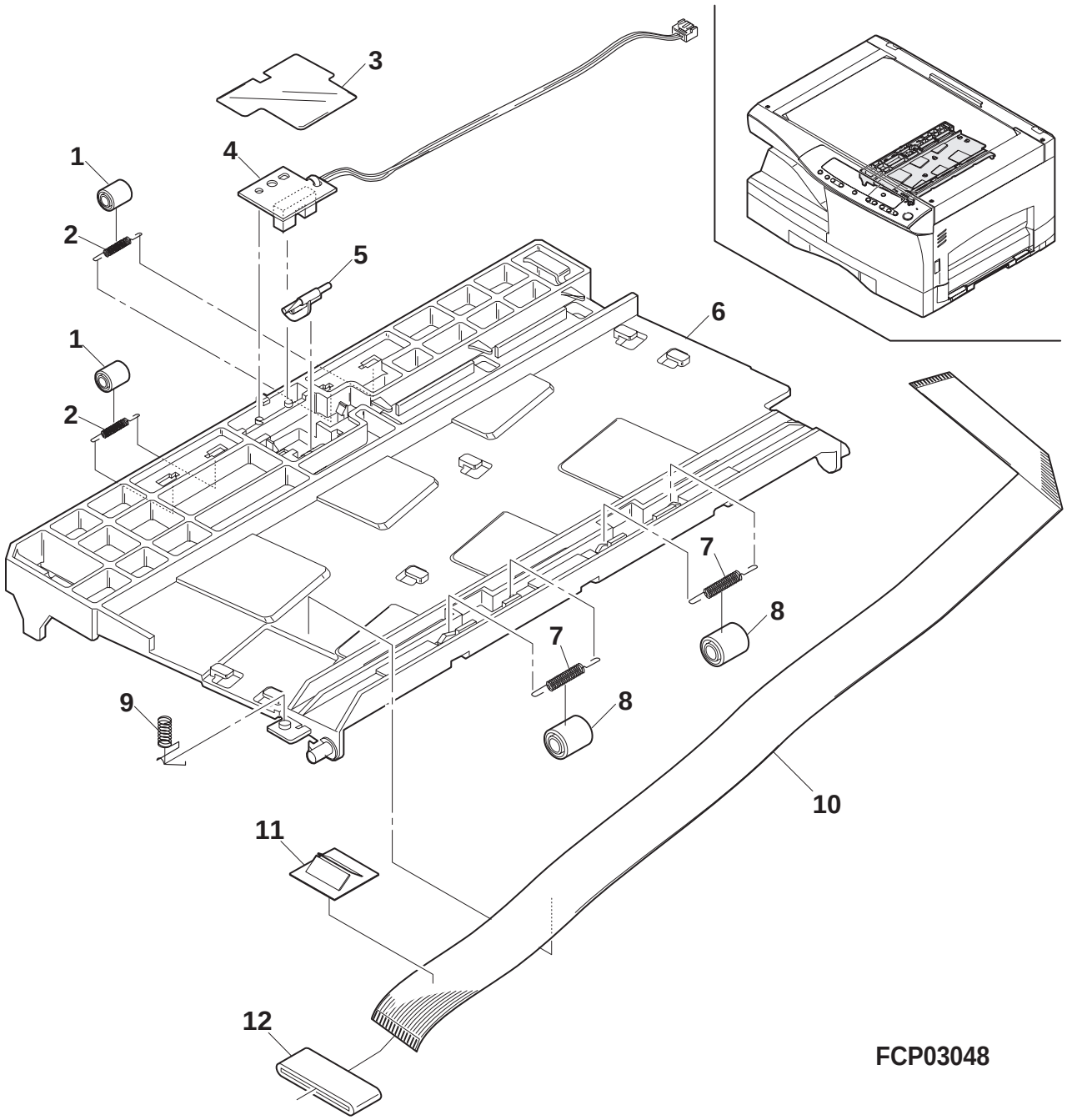
8 Mirror Holder unit



9 Delivery paper guide unit

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	NROLP0008QSZZ	AD	DJ	N	C	Delivery roller upper
2	MSPRT0020QSZZ	AB	DJ	N	C	Delivery roller spring
3	PSHEZ0017QSZZ	AC	DJ	N	C	PWB insulation sheet
4	CPWBF1177FC57	AG	DX	N	E	POD sensor PWB
5	MLEVP0005QSZZ	AD	DJ	N	C	Delivery actuator
6	PGIDM0006QSZZ	AN	EG	N	C	Delivery paper guide
7	MSPRC0021QSZZ	AB	DJ	N	C	Delivery transport roller spring
8	NROLP1122FCZZ	AF	DS		C	PS upper roller
9	MSPRC0022QSZ1	AC	DJ	N	C	Delivery earth spring
10	DHAI-0040QSZZ	AK	DX	N	C	OP harness
11	PSHEZ0080QSZZ	AE	DJ	N	C	OPE harness core hold sheet
12	RCORF0002QSZZ	AE	DS	N	C	Ferrite core

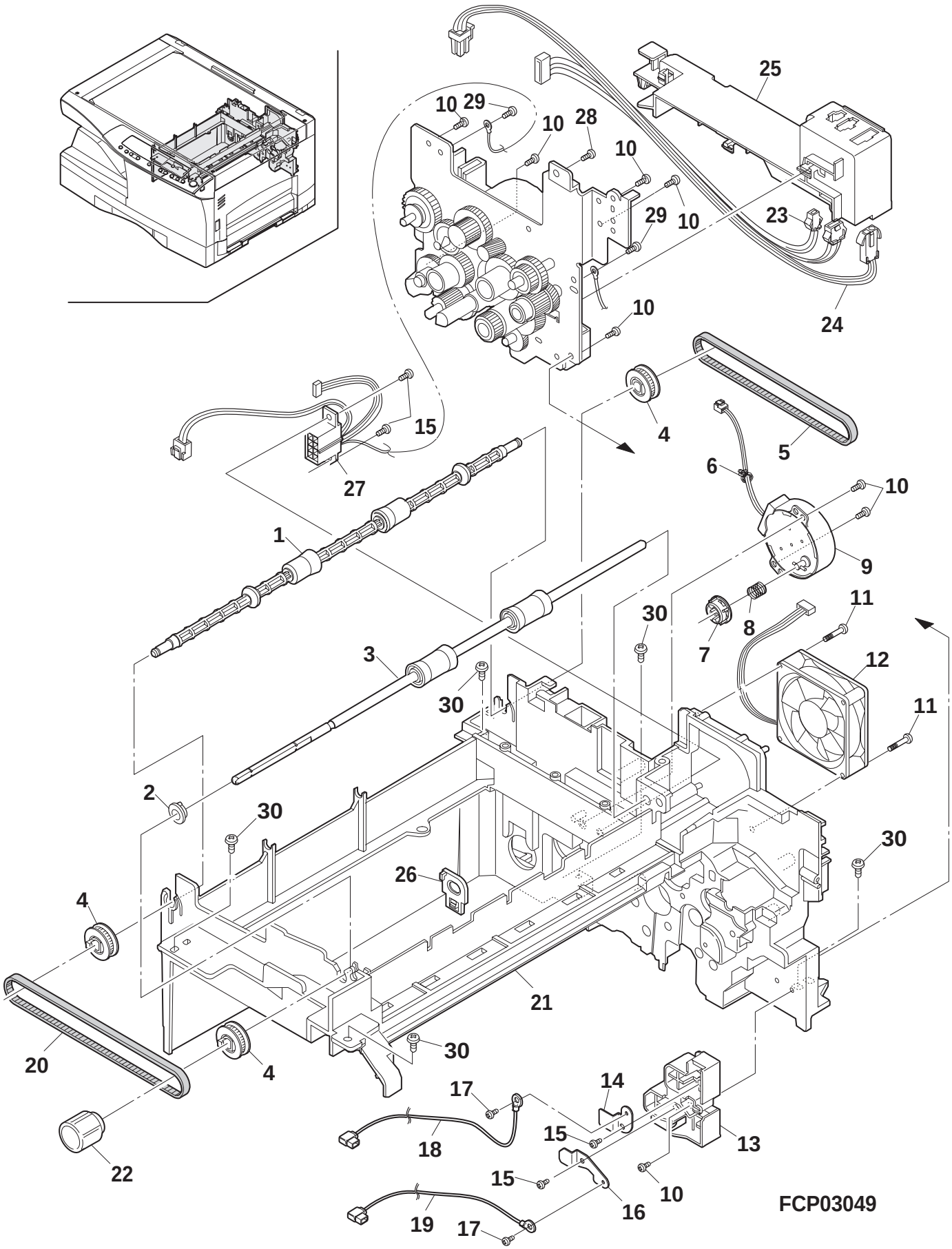
9 Delivery paper guide unit



10 Middle Frame

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	NRŌLP0007QSZ1	AQ	EQ	N	C	Delivery roller lower
2	NBRGC0579FCZZ	AE	DJ		C	Roller bearing
3	NRŌLP0012QSZ1	AS	EQ	N	C	Delivery trasport roller lower
4	NPLYZ0001QSZZ	AE	DJ	N	C	Pulley (22T)
5	NBLT-0005QSZZ	AH	DX	N	B	Delivery roller drive belt
6	LBNDJ0043FCZZ	AA	DD		C	Snap band (SG-130)
7	NCPL-0002QSZZ	AC	DJ	N	C	Hopper cupring
8	MSPRC0024QSZZ	AA	DJ	N	C	Hopper spring
9	RMŌTD0009QSZZ	AU	EZ	N	B	Toner motor
10	XEBSD30P10000	AA	DD		C	Screw (3×10)
11	XEBSD30P30000	AA	DD		C	Screw (3×30)
12	NFANP0001QSZZ	AY	FQ	N	B	Fan
13	LHLDZ0018QSZZ	AE	DS	N	C	TC high voltage holder
14	QSLP-0006QSZZ	AE	DJ	N	C	BC HV electrode plate
15	XEBSD30P06000	AA	DD		C	Screw (3×6)
16	QSLP-0005QSZZ	AE	DJ	N	C	TC HV electrode plate
17	XBPSC30P06K00	AA	DD		C	Screw (3×6K)
18	DHAi-0046QSZZ	AH	DX	N	C	BC harness
19	DHAi-0048QSZZ	AG	DX	N	C	TC harness
20	NBLTT0001QSZZ	AH	DX	N	B	Belt 308
21	LFRM-0002QSZZ	AX	FG	N	C	Center frame
22	JKNBZ0001QSZZ	AE	DS	N	C	Roller rotation knob
23	DHAi-0037QSZ1	AS	EQ	N	C	PPD2 interface harness
24	DHAi-0029QSZZ	AN	EG	N	C	HL harness 1 (100V series)
	DHAi-0057QSZZ	AN	EG	N	C	HL harness 1 (200V series)
25	PGiDM0009QSZZ	AG	DS	N	C	Harness guide
26	LPiNS0301FCZZ	AD	DJ		C	DV guide pin
27	DHAi-0038QSZZ	AS	EQ	N	C	DVS harness
28	LX-BZ3006SC0S	AA	DD		C	Screw (3×6)
29	XBBSD30P08000	AA	DD		C	Screw (3×8)
30	XEBSD40P12000	AA	DD		C	Screw (4×12)

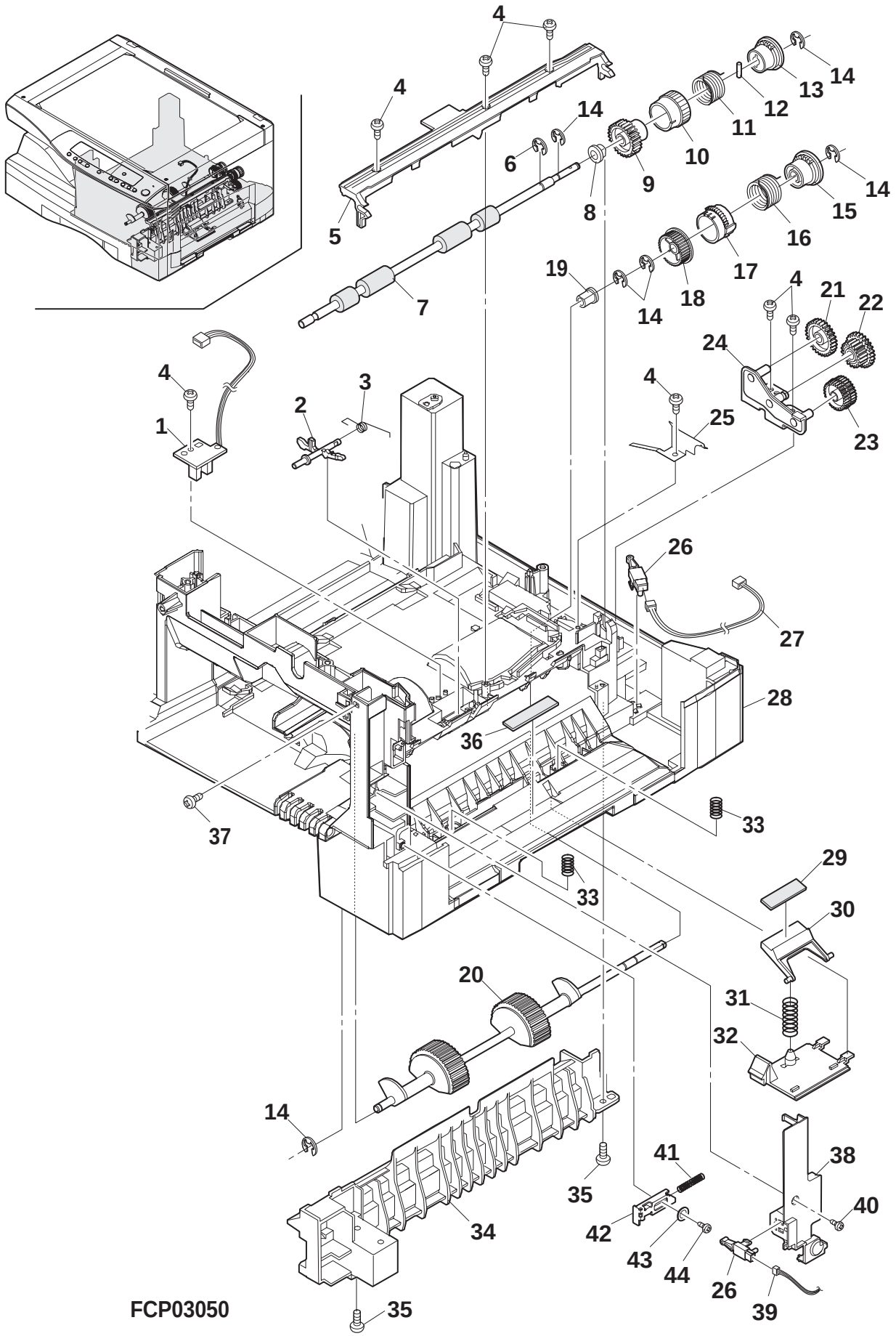
10 Middle Frame



11 Base plate unit 1

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ex.	Ja.				
1	CPWBF1177FC58	AG	DX	N	E	PPD1sensor PWB	
2	MLEVP0006QSZZ	AD	DJ	N	C	PS frnt actuator	
3	MSPRC0026QSZZ	AB	DJ	N	C	PS front actuator spring	
4	XEBSE30P10000	AA	DD		C	Screw (3×10)	
5	PGiDM0010QSZ1	AG	DX	N	C	TC front guide upper	
6	XRESP50-06000	AA	DD		C	E type ring	
7	NRŌLR0013QSZZ	AQ	EQ	N	C	PS lower roller	
8	NBRGC0100FCZ1	AC	DJ		C	Bearing 6	
9	NGERH0020QSZZ	AG	DX	N	C	Cluth gear (26T)	
10	PPiPP0109FCZZ	AB	DD		C	Pipe A	
11	MSPRC1316FCZ1	AE	DS		C	MF clutch spring B	
12	XPSSJ20-07000	AA	DD		C	Spring pin (ϕ2-7)	
13	LBŌSZ1851FCZZ	AC	DJ		C	Clutch boss	
14	XRESP40-06000	AA	DD		C	E type ring	
15	LBŌSZ1031FCZZ	AC	DJ		C	Clutch boss	
16	MSPRC1152FCZZ	AE	DJ		C	Clutch spring	
17	PPiPP0003QSZZ	AD	DJ	N	C	Clutch sleeve	
18	NGERH1132FCZZ	AH	DX		C	Clutch gear (29T)	
19	NBRGP0562FCZZ	AD	DJ		C	Bearing 5	
20	CRŌLP0015QS01	AU	EZ	N	C	paper feeding roller	
21	NGERH0022QSZZ	AC	DJ	N	C	Gear (33T)	
22	NGERH0026QSZZ	AD	DJ	N	C	Gear (21/29T)	
23	NGERH0025QSZZ	AD	DJ	N	C	W gear (30T)	
24	CPLTM0024QS01	AG	DX	N	C	PF plate 2	
25	LPLTM0046QSZZ	AE	DJ	N	C	PS earth plate	
26	QSW-B0003QSZZ	AF	DS	N	B	Tray detect switch	
27	DHAi-0050QSZZ	AR	EQ	N	C	CED1 harness	
28	GDAi-0001QSZZ	BF	GN	N	D	Base plate	
29	PSHEZ2026FCZ1	AB	DD		C	Sheet M1	(AL-1001/AL-1200)
30	LHLDZ0017QSZZ	AD	DJ	N	C	Pressure plate holder	(AL-1001/AL-1200)
31	MSPRC0047QSZZ	AA	DJ	N	C	Pressure plate spring	(AL-1001/AL-1200)
32	PCŌVP0013QSZZ	AD	DJ	N	C	Malti cover	
33	MSPRC0037QSZZ	AB	DJ	N	C	Transport lower roller spring	(AL-1000)
34	LRALP0001QSZZ	AM	EG	N	C	Base plate rail R	
35	XEBSE40P12000	AA	DD		C	Screw (4×12)	
36	PSHEZ2174FCZZ	AB	DD		C	Paper feeding sheet	(AL-1001/AL-1200)
37	XBPSD30P08KS0	AA	DD		C	Screw (3×8KS)	
38	PCŌVP0007QSZZ	AF	DS	N	C	Sensor cover	
39	DHAi-0049QSZZ	AG	DS	N	C	D-RST harness	
40	XEBSE30P12000	AA	DD		C	Screw (3×12)	
41	MSPRC0077QSZZ	AB	DJ	N	C	Front exterior lever spring	
42	LPLTM0016QSZZ	AE	DS	N	C	Front exterior lever plate	
43	LX-WZ0023FCZZ	AA	DD		C	Washer	
44	XEBSE30P10000	AA	DD		C	Screw (3×10)	

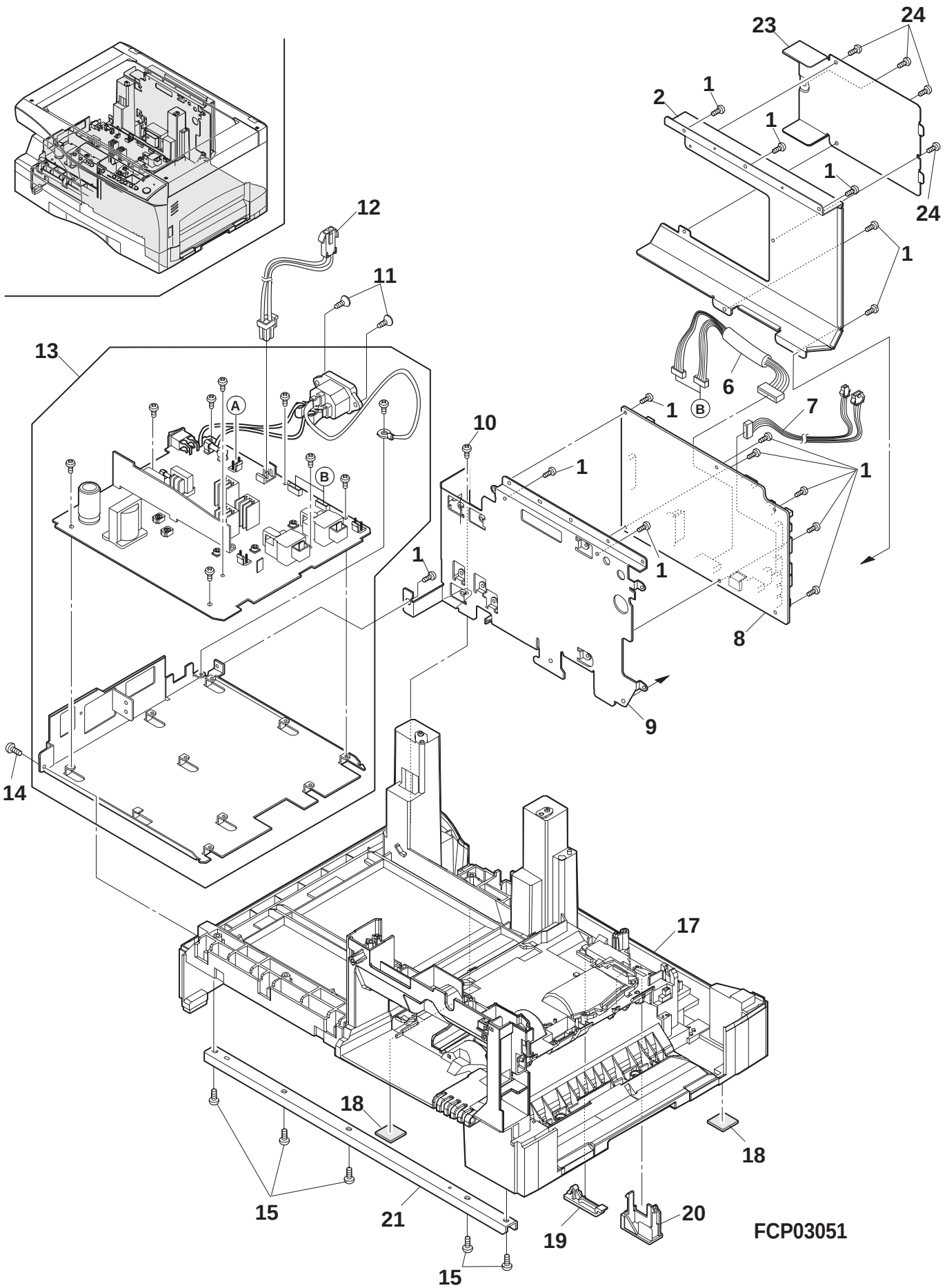
11 Base plate unit 1



12 Base plate unit 2

NO.	PARTS CODE	PRICE RANK Ex.	PRICE RANK Ja.	NEW MARK	PART RANK	DESCRIPTION
1	XHBSE30P06000	AA	DD		C	Screw (3×6)
2	LPLTM0088QSZZ	AN	EQ	N	C	PWB cover
6	DHAi-0039QSZZ	BD	GJ	N	C	Center frame harness (100V series)
	DHAi-0064QSZ1	AU	EZ	N	C	Center frame harness (200V series)
7	DHAi-0037QSZ1	AS	EQ	N	C	PPD2 interface harness
8	CPWBX0010QS52	CB	TZ	N	E	MCU PWB (10CPM) (AL-1000/AL-1001)
	CPWBX0010QS53	CH	UM	N	E	MCU PWB (12CPM) (AL-1200)
9	LPLTM0017QSZ1	AR	EQ	N	C	PWB holder
10	XEBSD30P10000	AA	DD		C	Screw (3×10)
11	XESSD30P10000	AA	DD	N	C	Screw (3×10)
12	DHAi-0029QSZZ	AN	EG	N	C	HL harness 1 (100V series)
	DHAi-0057QSZZ	AN	EG	N	C	HL harness 1 (200V series)
⚠ 13	CPWBF0017QS31	BV	NU	N	E	DC power supply PWB (100V/110V)
⚠	CPWBF0017QS32	BU	NN	N	E	DC power supply PWB (120V/127V)
⚠	CPWBF0017QS34	BV	RB	N	E	DC power supply PWB (200V series)
14	XEBSE30P10000	AA	DD		C	Screw (3×10)
15	XEBSE40P12000	AA	DD		C	Screw (4×12)
17	GDAi-0001QSZZ	BF	GN	N	D	Base plate
18	GLEGG0064FCZZ	AC	DJ		C	Rubber foot
19	PCOVP0009QSZZ	AE	DS	N	C	2nd connector cover (Except Europe)
	PCOVP0009QSZA	AF	DS	N	C	2nd connector cover (For Europe)
20	PCOVP0008QSZZ	AE	DJ	N	C	2nd gear cover (Except Europe)
	PCOVP0008QSZA	AE	DS	N	C	2nd gear cover (For Europe)
21	LPLTM0020QSZZ	AL	EB	N	C	Base plate reinforce plate F
23	LPLTM0089QSZZ	AH	DX	N	C	PWB cover
24	XBBSE30P08000	AA	DD		C	Screw (3×8)

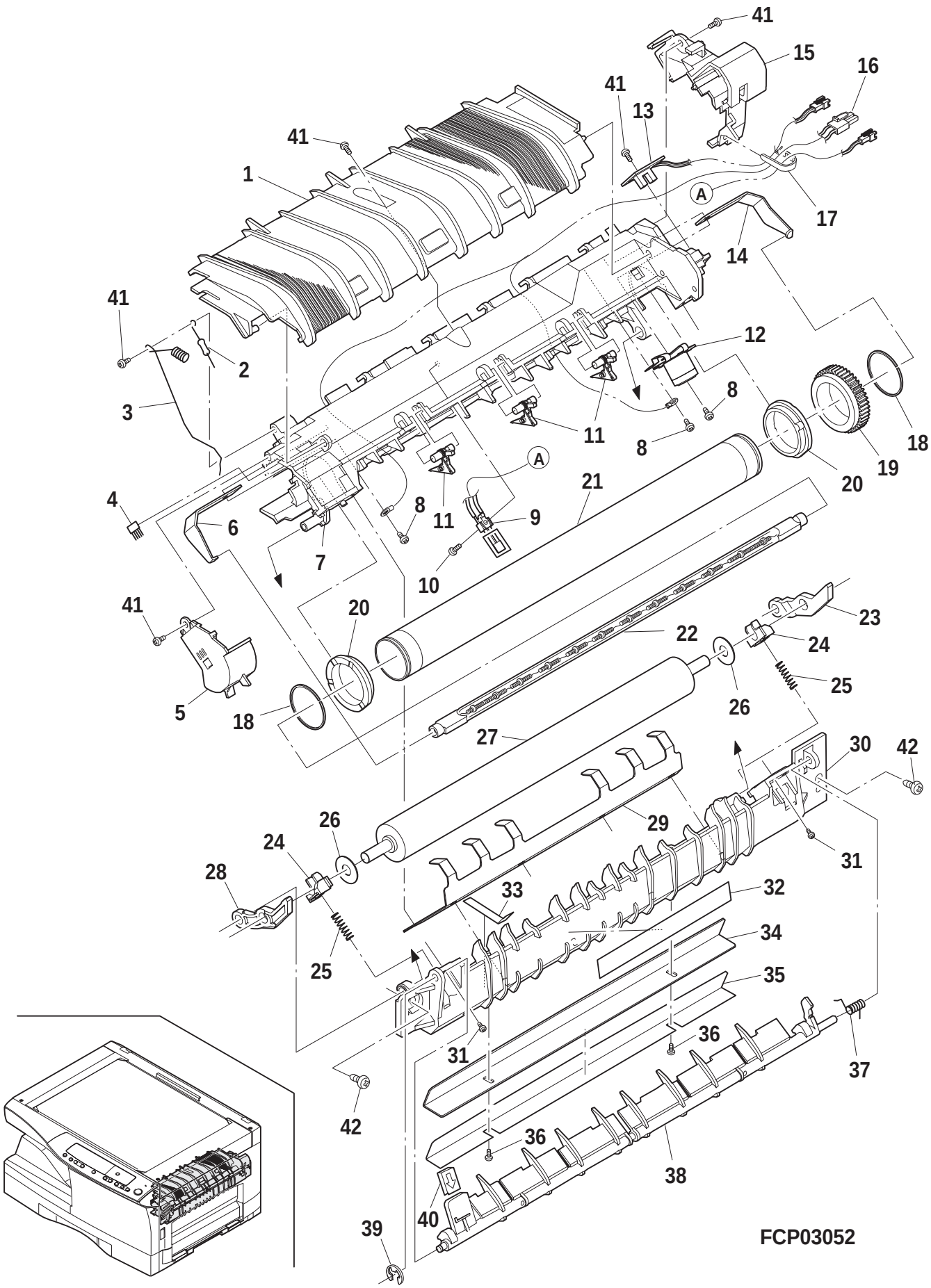
12 Base plate unit 2



13 Fusing unit

NO.	PARTS CODE	PRICE RANK Ex.	PRICE RANK Ja.	NEW MARK	PART RANK	DESCRIPTION
1	PGiDM0023QSZZ	AP	EQ	N	C	U-turn guide lower
2	VRH-ST2HB157K	AD	DJ		C	Resistor (1/2W 150MΩ)
3	PWiR-0001QSZZ	AF	DS	N	C	HR earth wire
4	PBRSR0004QSZZ	AE	DS	N	B	Discharge brush FU
5	PCŌVP0010QSZZ	AG	DS	N	C	Fusing cover F
6	MSPRP0033QSZZ	AD	DJ	N	C	Copy lamp spring F
7	LFRM-0004QSZZ	AV	FG	N	C	Fusing upper frame
8	LX-BZ0010QSZZ	AB	DD	N	C	Screw (3×6)
9	RDTCT0128FCZZ	AR	EQ		B	Thermistor
10	XBPSD30P10KS0	AB	DD		C	Screw (3×10KS)
11	CTME-0229FC03	AG	DX	N	B	Separator pawl
12	CTHM-0019FC52	AU	FG	N	E	FU thermostat unit
13	CPWBF1177FC59	AG	DX	N	E	PPD2 sensor PWB
14	MSPRP0034QSZZ	AE	DJ	N	C	Copy lamp spring R
15	PCŌVP0011QSZZ	AK	DX	N	C	Fusing cover R
16	DHAi-0030QSZZ	AN	EG	N	C	HL harness 2 (100V series)
	DHAi-0058QSZZ	AL	EB	N	C	HL harness 2 (200V series)
17	LBNDJ0067FCZZ	AC	DJ		C	Wire band
18	LSTPP0116FCZZ	AA	DD		C	Roller stopper
19	NGERH0540FCZ1	AE	DJ		C	Fushing gear (45T)
20	NBRGP0567FCZZ	AG	DX		C	Fusing bearing
21	NRŌLi0014QSZZ	AZ	FQ	N	C	Heart roller
⚠	RLMPU0009QSZZ	BA	FX	N	B	Heater lamp (100V)
⚠ 22	RLMPU0010QSZZ	BA	FX	N	B	Heater lamp (120V)
⚠	RLMPU0011QSZZ	BA	FX	N	B	Heater lamp (230V)
23	MLEVP0015QSZZ	AF	DS	N	C	Pressure lever R
24	NBRGP0260FCZ1	AD	DS		C	Pressure bearing N
25	MSPRC0055QSZZ	AC	DJ	N	C	Pressure spring
26	LX-WZ0313FCZZ	AA	DD		C	Washer
27	NRŌLR0028QSZZ	AZ	FQ	N	C	Pressure roller
28	MLEVP0014QSZZ	AF	DS	N	C	Pressure lever F
29	LPLTM0022QSZZ	AG	DS	N	C	Scraper
30	LFRM-0005QSZZ	AQ	EQ	N	C	Fusing lower frame
31	XEBSE30P12000	AA	DD		C	Screw (3×12)
	TCAUH1013FCZZ	AD	DJ		C	High temperature causion label (Japan only)
32	TCAUH0991FCZZ	AE	DS		C	High temperature causion label (Australia,U,Kingdom)
	TCAUH0992FCZZ	AE	DS		C	High temperature causion label (Other countries)
33	PSHEZ0045QSZZ	AB	DJ	N	C	PG earth sheet
34	PGiDH0026QSZZ	AE	DS	N	C	Fusing front paper guide
35	PSHEP0023QSZZ	AF	DS	N	C	Fusing front PG sheet
36	LX-BZ0735FCZZ	AA	DD		C	Screw
37	MSPRT0054QSZZ	AC	DJ	N	C	Gate spring
38	LPLTP0009QSZZ	AS	EZ	N	C	Turn over gate
39	XRESP30-04000	AA	DD		C	E type ring
40	PSHEP0047QSZZ	AC	DJ	N	C	Handle label
41	XEBSE30P08000	AA	DD		C	Screw (3×8)
42	LX-BZ0011QSZZ	AB	DD	N	C	Screw
	(Unit)					
⚠	DUNTW0014QSZZ	BT	NE	N	E	Fusing unit (100V)(Japan)
⚠ 901	DUNTW0014QS12	BT	NE	N	E	Fusing unit (120V)(USA,CANADA)
⚠	DUNTW0014QS13	BT	NE	N	E	Fusing unit (230V)(Australia,U,Kingdom)
⚠	DUNTW0014QS14	BT	NE	N	E	Fusing unit (230V)(For Europe)

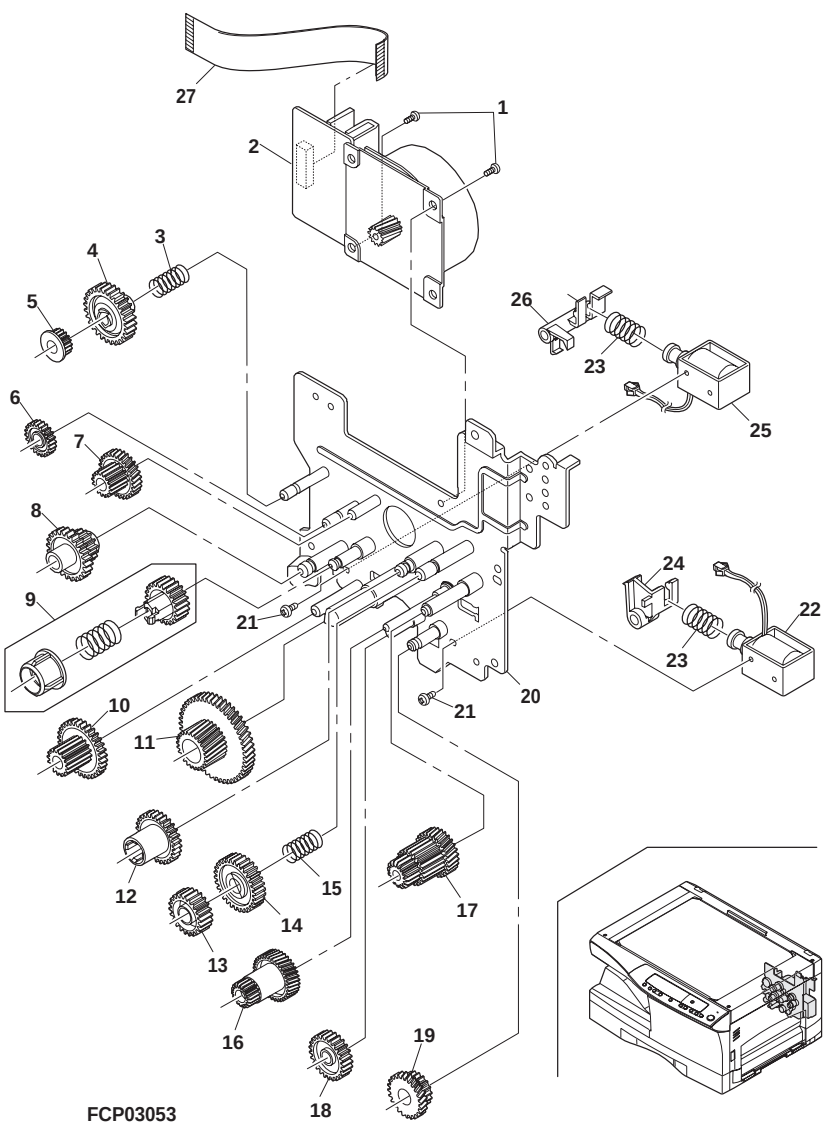
13 Fusing unit



14 Drive unit

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	XBBSD40P06000	AA	DD		C	Screw (4×6)
2	RMOTP0010QSZZ	BN	HZ	N	B	Main motor
3	MSPRC0053QSZZ	AB	DJ	N	C	Pulley spring
4	NGERH0050QSZZ	AD	DJ	N	C	Ratchet gear (33T)
5	NPLYZ0002QSZZ	AC	DJ	N	C	Pulley (17T)
6	NGERH0010QSZZ	AD	DJ	N	C	Gear (28T)
7	NGERH0009QSZZ	AD	DJ	N	C	Gear (46/16T)
8	NGERH0014QSZZ	AD	DJ	N	C	Gear (30/15T)
9	CGERH0011QS51	AE	DS	N	E	MG gear unit
10	NGERH0015QSZZ	AD	DJ	N	C	Gear (37/15T)
11	NGERH0007QSZZ	AH	DX	N	C	Gear (68/26T)
12	NGERH0016QSZZ	AD	DJ	N	C	Cupring gear (34T)
13	NGERH0019QSZZ	AD	DJ	N	C	Ratchet gear (21T)
14	NGERH0018QSZZ	AC	DJ	N	C	Ratchet gear (28T)
15	MSPRC0023QSZZ	AB	DJ	N	C	Ratchet spring
16	NGERH0008QSZ1	AL	EB	N	C	Gear (55/19T)
17	NGERH0017QSZZ	AD	DJ	N	C	Gear (33/20/15T)
18	NGERH0012QSZZ	AE	DS	N	C	Gear (20T)
19	NGERH0013QSZZ	AG	DX	N	C	Gear (31/17T)
20	CPLTM0042QS01	AZ	FQ	N	C	Main drive plate
21	XBBSD30P04000	AA	DD		C	Screw (3×4)
22	RPLU-0001QSZZ	AN	EG	N	B	PS solenoide
23	MSPRC1318FCZ1	AA	DJ		C	Spring B
24	PTME-0002QSZZ	AD	DJ	N	B	PS roller pawl
25	RPLU-0002QSZZ	AN	EG	N	B	Solenoide
26	PTME-0003QSZZ	AD	DJ	N	B	Roller pawl
27	DHAi-0045QSZZ	AD	DJ	N	C	Main motor harness
	(Unit)					
901	CPLTM0042QS51	BP	LP	N	E	Drive unit

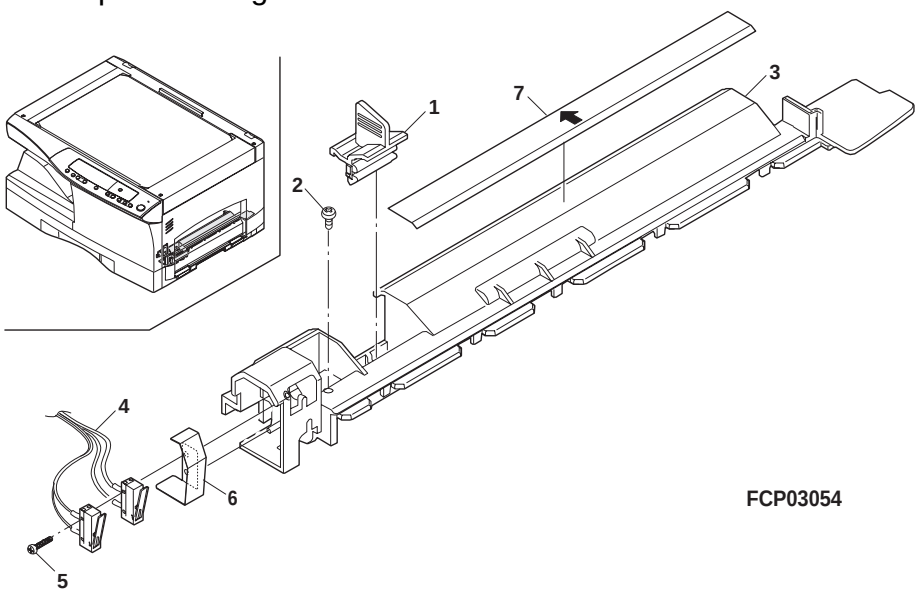
14 Drive unit



15 Single Manual Paper Feeding cover unit··AL-1000

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	CCLEZ0005QS51	AQ	EQ	N	E	Charger cleaner unit
2	XEBSE30P08000	AA	DD		C	Screw (3×8)
3	PCÖVP0012QSZZ	AK	DX	N	C	Single upper cover
4	CSW-M0004QS51	AS	EQ	N	E	Side door detect switch unit
5	XEPSD20P18000	AB	DD	N	C	Screw (2×18)
6	MSPRP0110QSZZ	AE	DJ	N	C	Door switch spring
7	TCAUH0007QSZZ	AD	DJ	N	C	Laser caution label (For Europe,Australia)

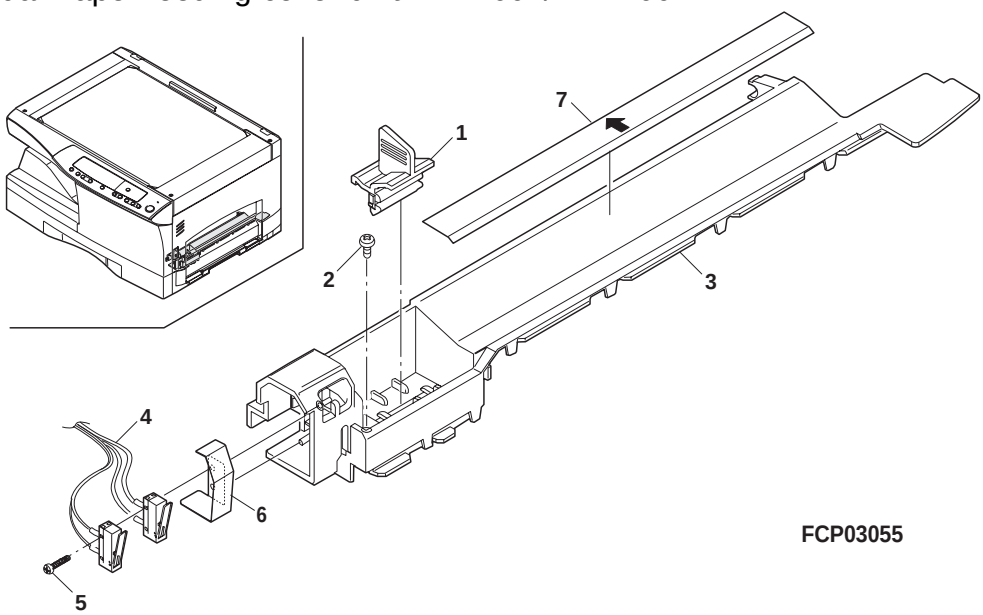
15 Single Manual Paper Feeding cover unit··AL-1000



16 Multi Manual Paper feeding cover unit··AL-1001/AL-1200

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	CCLEZ0005QS51	AQ	EQ	N	E	Charger cleaner unit
2	XEBSE30P08000	AA	DD		C	Screw (3×8)
3	PCÖVP0023QSZZ	AK	DX	N	C	Multi upper cover
4	CSW-M0004QS51	AS	EQ	N	E	Side door detect switch unit
5	XBPSD20P18000	AA	DD	N	C	Screw (2×18)
6	MSPRP0110QSZZ	AE	DJ	N	C	Door switch spring
7	TCAUH0007QSZZ	AD	DJ	N	C	Laser caution label (For Europe,Australia)

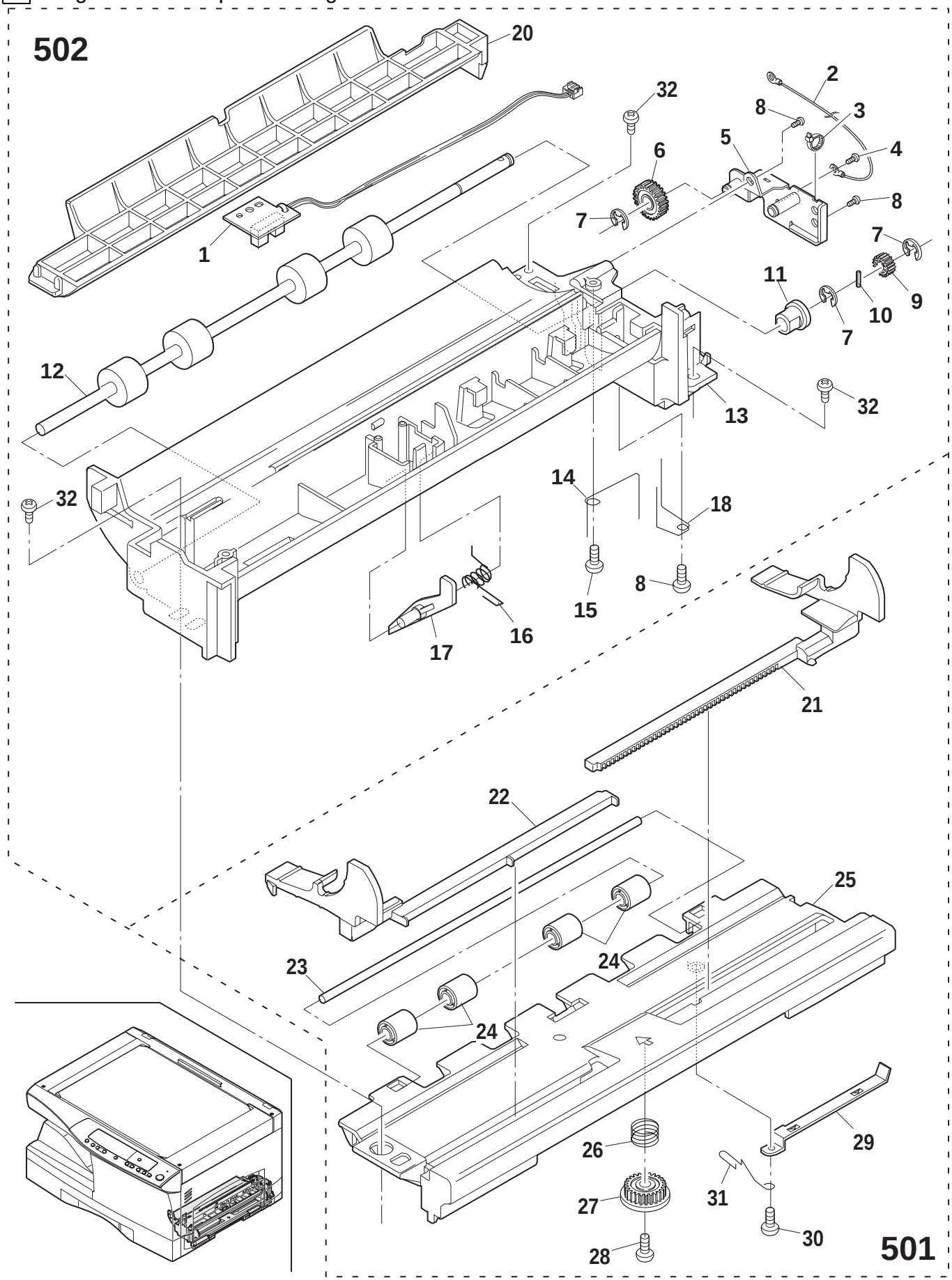
16 Multi Manual Paper feeding cover unit··AL-1001/AL-1200



17 Single Manual Paper Feeding unit··AL-1000

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	CPWBF1177FC5B	AG	DX	N	E	MFD sensor PWB
2	DHAi-0066QSZZ	AD	DJ	N	C	Manual feed earth harness
3	LBNDJ0013FCZZ	AA	DD		C	Wire band
4	XHBSE30P06000	AA	DD		C	Screw (3×6)
5	CPLTM0023QS01	AG	DX	N	C	PF plate 1
6	NGERH0972FCZZ	AB	DJ		C	Gear (27T)
7	XRESP40-06000	AA	DD		C	E type ring
8	XEBSE30P08000	AA	DD		C	Screw (3×8)
9	NGERH0990FCZZ	AB	DJ		C	Gear (16T)
10	XPSSJ20-07000	AA	DD		C	Spring pin (ϕ2-7)
11	LBSHZ0303FCZZ	AC	DJ		C	M bushing C
12	NRÖLR0016QSZZ	AT	EZ	N	C	MF transport roller
13	LFRM-0006QSZZ	AN	EG	N	C	Single manual feed frame
14	MSPRC0039QSZZ	AB	DJ	N	C	Earth spring
15	XEBSD30P06KS0	AA	DD	N	C	Screw (3×6KS)
16	MSPRC0038QSZZ	AC	DJ	N	C	Actuator spring
17	MLEVP0007QSZZ	AD	DJ	N	C	Actuator
18	MSPRC0080QSZZ	AB	DJ	N	C	SB transport earth spring
20	PGiDM0014QSZZ	AF	DS	N	C	DUP upper guide
21	PGiDM0013QSZZ	AF	DS	N	C	SB side guide R
22	PGiDM0012QSZZ	AF	DS	N	C	SB side guide F
23	NSFTZ0007QSZZ	AG	DX	N	C	Roller shaft
24	NRÖLP1122FCZZ	AF	DS		C	PS upper roller
25	LFRM-0007QSZZ	AK	EB	N	C	Single manual feed lower frame
26	MSPRC0036QSZZ	AB	DJ	N	C	MF spring
27	NGERH0021QSZZ	AD	DJ	N	C	Manual paper feeding gear
28	XEPSD30P06X00	AA	DD		C	Screw (3×6X)
29	MSPRP0079QSZZ	AD	DJ	N	C	SB earth plate spring
30	XEBSE30P06000	AA	DD		C	Screw (3×6)
31	MSPRD0108QSZZ	AC	DJ	N	C	SB lower earth spring
32	XEBSE40P12000	AA	DD		C	Screw (4×12)
501	CFRM-0007QS51	BF	GN	N	E	SB manual feeding lower frame unit
502	CFRM-0006QS51	BE	GN	N	E	Single manual paper feeding unit

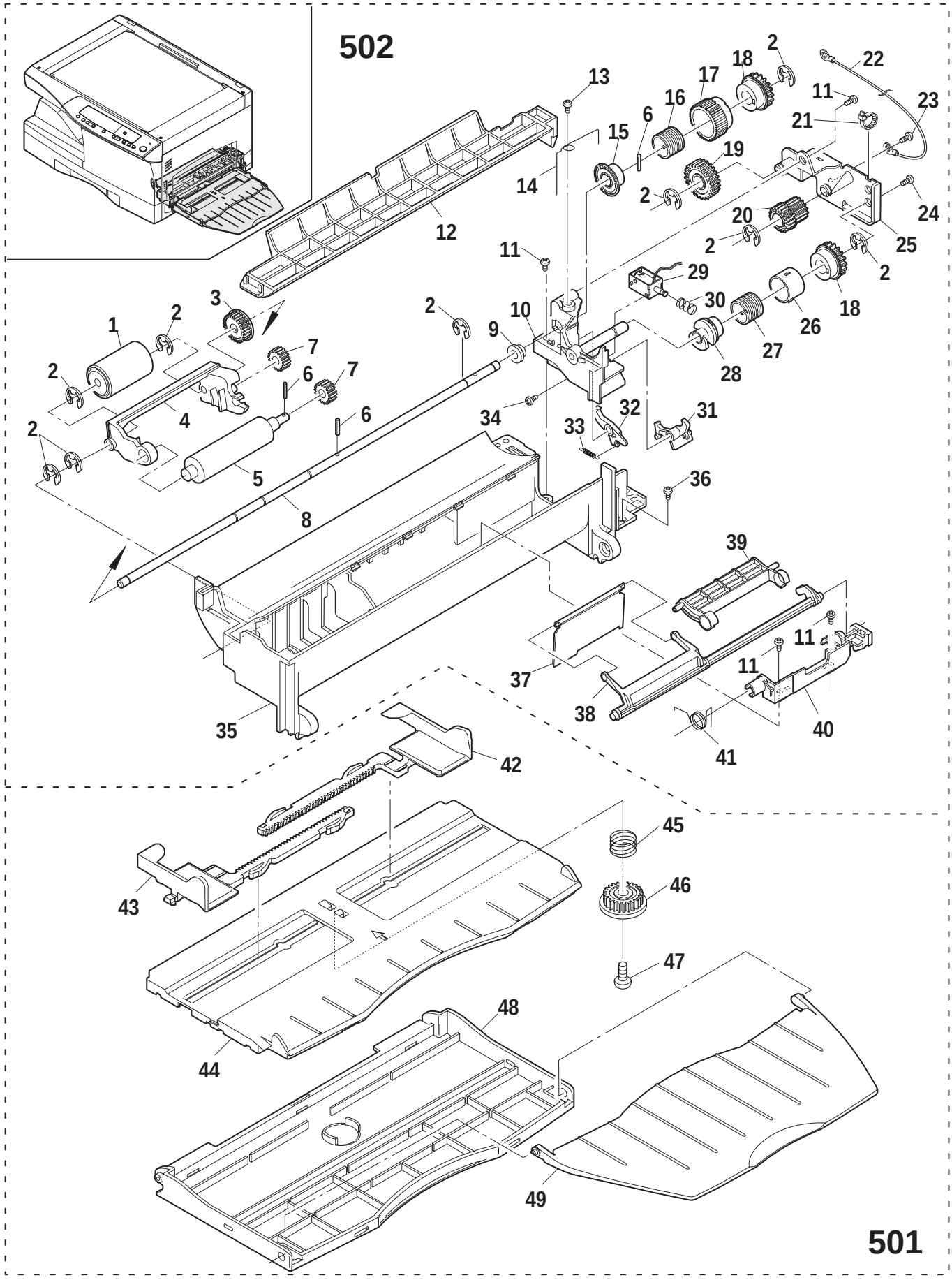
17 Single Manual Paper Feeding unit··AL-1000



18 Multi manual paper feeding unit··AL-1001/AL-1200

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	NRŌLR0922FCZZ	AR	EZ		C	Manual feeding roller
2	XRESP40−06000	AA	DD		C	E type ring
3	NGERH0992FCZZ	AB	DJ		C	Gear (20T)
4	MARMP0173FCZZ	AC	DJ		C	Arm C
5	NRŌLP1008FCZZ	AK	EB		C	Roller R
6	XPSSJ20−07000	AA	DD		C	Spring pin (ϕ2-7)
7	NGERH0990FCZZ	AB	DJ		C	Gear (16T)
8	NSFTZ2311FCZZ	AU	EZ		C	Cam boss A shaft
9	LBSHZ0303FCZZ	AC	DJ		C	M bushing C
10	LBRC−0055FCZZ	AK	EB		C	Multi F bracket
11	XEBSE30P08000	AA	DD		C	Screw (3×8)
12	PGiDM0014QSZZ	AF	DS	N	C	DUP upper guide
13	XEBSD30P06000	AA	DD		C	Screw (3×6)
14	MSPRC0049QSZZ	AC	DJ	N	C	Manual feeding earth spring
15	LBŌSZ1508FCZZ	AG	DX		C	Cam boss A2
16	MSPRC1315FCZ1	AD	DJ		C	Manual feeding clutch spring A
17	PPiPP0109FCZZ	AB	DD		C	Manual feeding clutch sieeve A
18	LBŌSZ1510FCZZ	AF	DX		C	Cam boss A1
19	NGERH0972FCZZ	AB	DJ		C	Gear (27T)
20	NGERH0991FCZZ	AC	DJ		C	Gear (20.20MXL)
21	LBNDJ0013FCZZ	AA	DD		C	Wire band
22	DHAi−0066QSZZ	AD	DJ	N	C	Manual feeding earth harness
23	XHBSE30P06000	AA	DD		C	Screw (3×6)
24	XBPSD30P06KS0	AA	DD		C	Screw (3×6KS)
25	CPLTM0023QS01	AG	DX	N	C	Paper feed plate 1
26	PPiPP0175FCZZ	AC	DJ		C	Pipe B
27	MSPRC1316FCZ1	AE	DS		C	Manual feeding clutch spring B
28	LBŌSZ1509FCZ1	AD	DJ		C	Cam boss B
29	RPLU−0003QSZZ	AN	EG	N	B	Multi feeding solenoid
30	MSPRC1318FCZ1	AA	DJ		C	Manual feeding spring B
31	PTME−0179FCZZ	AC	DD		C	Manual feeding ratch B
32	PTME−0178FCZZ	AC	DD		C	Manual feeding ratch A
33	MSPRC2175FCZZ	AA	DJ		C	Pawl A spring
34	XBBSD30P08000	AA	DD		C	Screw (3×8)
35	LFRM−0010QSZZ	AN	EG	N	C	Multi frame
36	XEBSE40P12000	AA	DD		C	Screw (4×12)
37	LSTPP0300FCZZ	AB	DJ		C	Stopper plate
38	MARMP0205FCZZ	AF	DS		C	Arm B
39	MARMP0204FCZ1	AF	DS		C	Arm A
40	MHNG−0002QSZZ	AC	DJ	N	C	Arm hinge
41	MSPRC0048QSZZ	AB	DJ	N	C	Arm C spring
42	PGiDM0018QSZZ	AE	DJ	N	C	MB side guide R
43	PGiDM0017QSZZ	AE	DJ	N	C	MB side guide L
44	PCŌVP0019QSZ1	AK	DX	N	C	Multi tray front cover (Japan only)
	PCŌVP0019QSZZ	AK	DX	N	C	Multi tray front cover (Except Japan)
45	MSPRC0036QSZZ	AB	DJ	N	C	MF spring
46	NGERH0021QSZZ	AD	DJ	N	C	Manual feeding gear
47	XEPSD30P06X00	AA	DD		C	Screw (3×6X)
48	LSŌU−0002QSZZ	AL	EB	N	D	Multi tray 1
49	LSŌU−0003QSZZ	AK	DX	N	D	Multi tray 2
501	CSŌU−0002QS51	AW	EZ	N	E	Multi manual paper feeding tray unit (Japan only)
	CSŌU−0002QS52	AY	FQ	N	E	Multi manual paper feeding tray unit (Except Japan)
502	CFRM−0010QS51	BG	GN	N	E	Multi manual paper feeding unit

18 Multi manual paper feeding unit··AL-1001/AL-1200

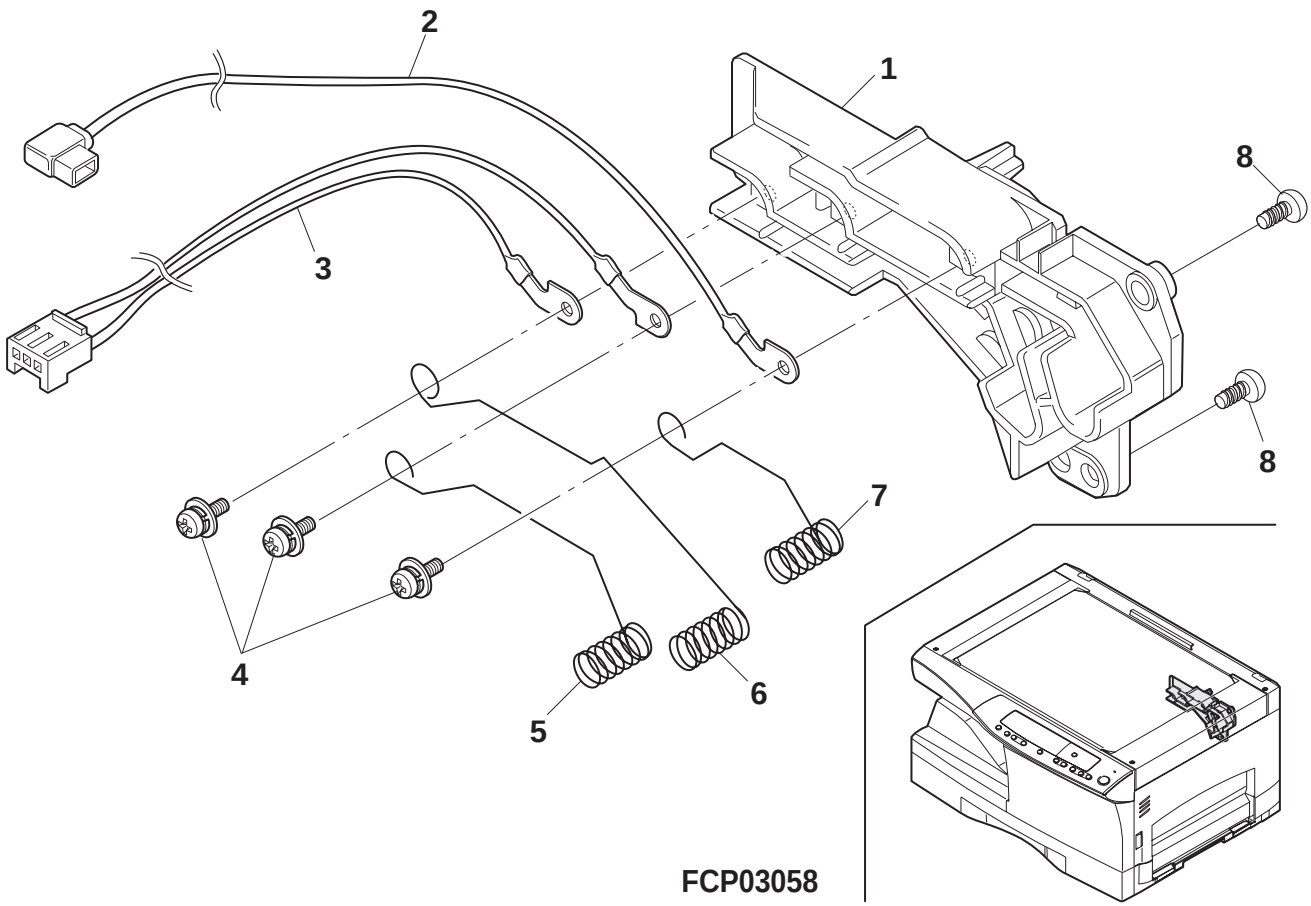


FCP03057

19 Socket Holder unit

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	LHLDZ0009QSAZ	AF	DS	N	C	HV interface holder
2	CHAi-0032QS51	AL	EB	N	E	MC harness unit
3	CHAi-0028QS51	AL	EB	N	E	GB-MCFB harness unit
4	XBPSC30P06ES0	AA	DD	N	C	Screw (3×6ES)
5	MSPRC0017QSZZ	AC	DJ	N	C	HV terminal spring
6	MSPRC0018QSZZ	AC	DJ	N	C	HV terminal spring
7	MSPRC0016QSZZ	AC	DJ	N	C	HV terminal spring
8	XEBSD30P08000	AA	DD		C	Screw (3×8)

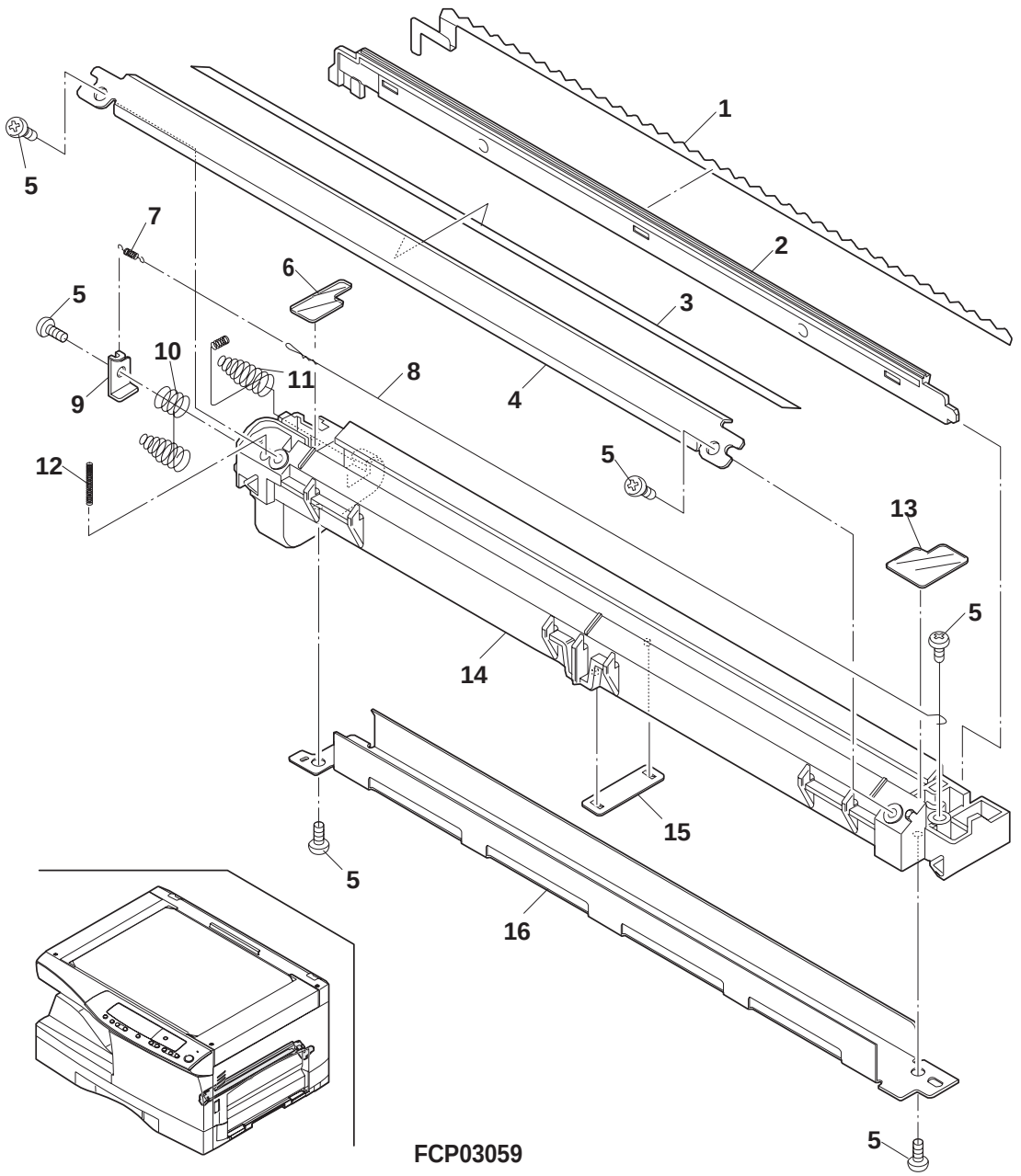
19 Socket Holder unit



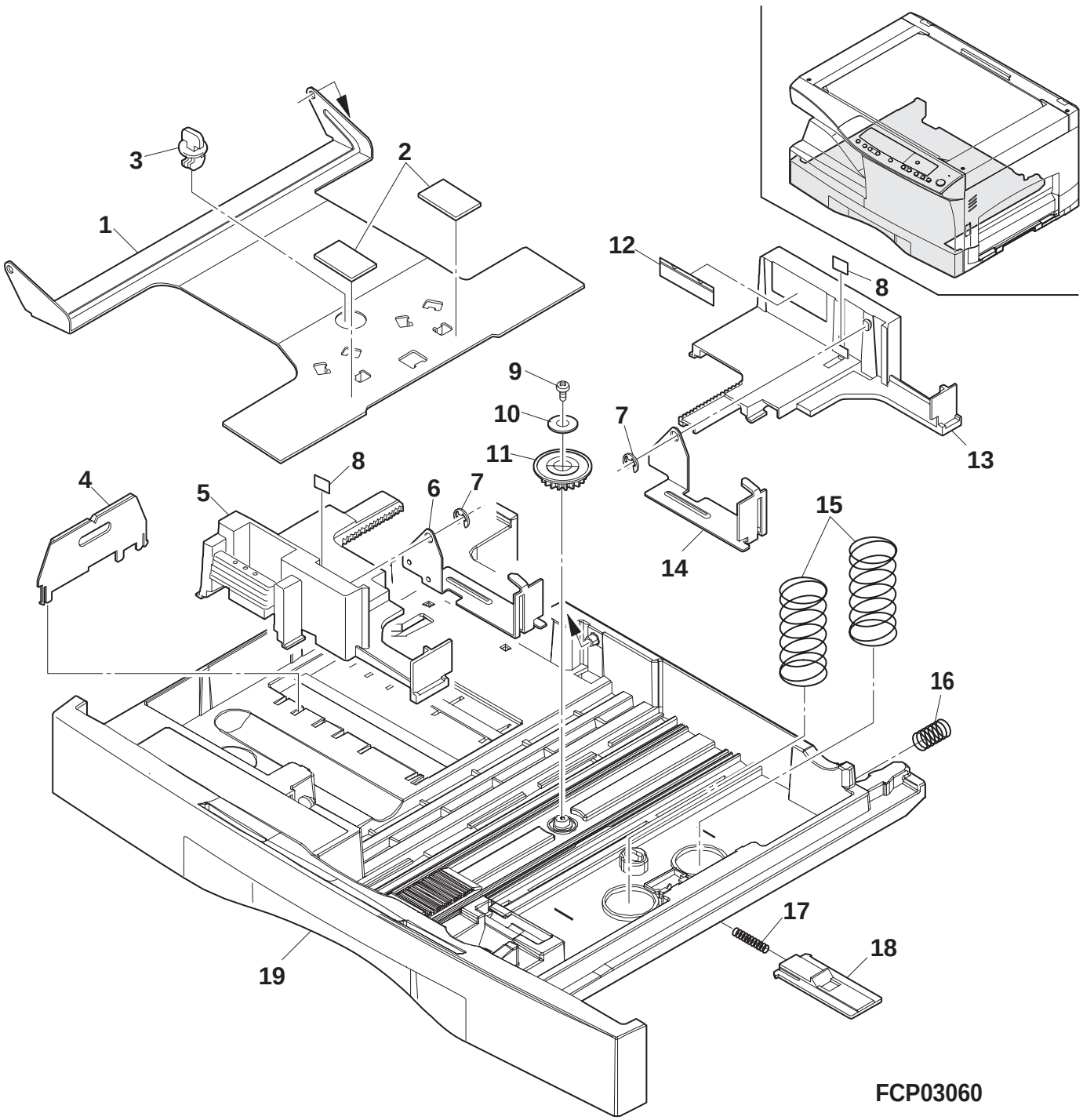
20 TC case unit

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	PSHEZ0018QSZZ	AF	DS	N	C	Discharge plate sheet
2	PGiDM0011QSZZ	AE	DS	N	C	Separator guige
3	PSHEP0019QSZZ	AC	DJ	N	C	TC sheet
4	PGiDH0025QSZ1	AG	DX	N	C	TC front guide
5	XEBSD30P06000	AA	DD		C	Screw (3×6)
6	PSHEP0021QSZZ	AA	DJ	N	C	TC cover sheet R
7	MSPRT0513FCZ1	AA	DJ		C	MC tension spring
8	DWiR-0466CSZZ	BG	HC		B	Charger wire
9	QSLP-0007QSZZ	AC	DJ	N	C	TC electrode plate
10	MSPRC0027QSZZ	AC	DJ	N	C	TC electrode spring
11	MSPRC0028QSZZ	AC	DJ	N	C	BC electrode spring
12	MSPRC0051QSZZ	AA	DJ	N	C	Front guide earth spring
13	PSHEP0020QSZZ	AB	DJ	N	C	TC cover sheet F
14	LHLDZ0010QSZZ	AL	EB	N	C	TC holder
15	LFiX-0004QSZZ	AC	DJ	N	C	Holer fixing plate
16	PCASZ0002QSZZ	AL	EB	N	C	TC case
	(Unit)					
901	CHLDZ0010QS51	AX	FG	N	E	Transcription holder unit

20 TC case unit



21 250 sheets tray



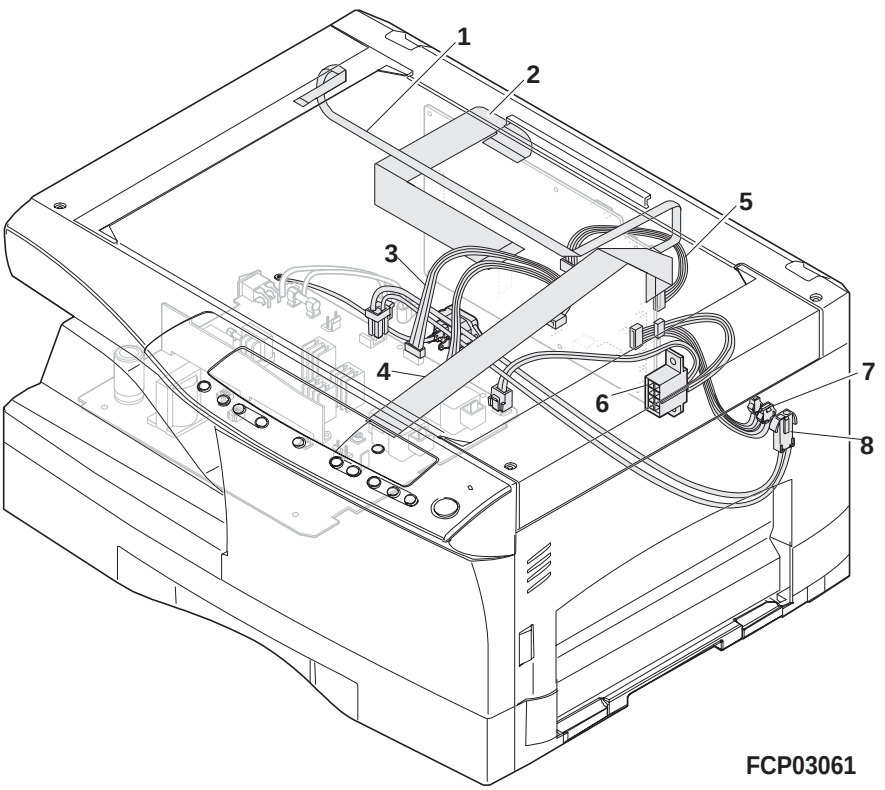
21 250 sheets tray

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	LPLTM5106FCZZ	AR	EQ		C	Turning plate 250
2	PSHEZ4142FCZZ	AC	DJ		C	Rotation plate sheet
3	LHLDW1226FCZZ	AB	DJ		C	Turn fasner
4	LPLTM2642FCGZ	AD	DS		C	Tray rear plate
5	LPLTP5107FCZZ	AH	DX		C	250 tray side plate F
6	PTME-0255FCZZ	AG	DS		C	250 tray pawl F
7	XRESP40-06000	AA	DD		C	E type ring
8	PSHEP0061QSZZ	AA	DJ	N	C	Tray guide sheet
9	XEBSE30P08000	AA	DD		C	Screw (3×8)
10	LX-WZ2028SCZZ	AA	DD		C	Washer (3×10)
11	NGERH0193FCZZ	AB	DD		C	UC manual feed gear
12	TLABZ3568FCZZ	AB	DJ		C	Indication label
13	LPLTP5108FCZZ	AH	DX		C	250 tray side plate R
14	PTME-0256FCZZ	AG	DS		C	250 tray pawl R
15	MSPRC0108QSZZ	AC	DJ	N	C	250 Tray spring
16	MSPRC1873FCZ1	AB	DJ		C	Tray spring
17	MSPRC1145FCZZ	AA	DD		C	Stopper spring
18	LSTPP0161FCZZ	AB	DD		C	Rotation plate stopper
19	GCASP0001QSZZ	AY	FQ	N	D	250 Tray case
	(Unit)					
901	CCASP0001QS51	BC	GJ	N	E	250 Tray unit

22 Harness

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	DHAi-0041QSZZ	AF	DS	N	C	CL lead harness
2	DHAi-0042QSZZ	AK	EB	N	C	ICU-CCD harness
3	DHAi-0039QSZZ	BD	GJ	N	C	Center frame harness (100V series)
	DHAi-0064QSZ1	AU	EZ	N	C	Center frame harness (200V series)
4	DHAi-0040QSZZ	AK	DX	N	C	OP harness
5	DHAi-0045QSZZ	AD	DJ	N	C	Main motor harness
6	DHAi-0038QSZZ	AS	EQ	N	C	DVS harness
7	DHAi-0037QSZ1	AS	EQ	N	C	PPD2 interface harness
8	DHAi-0029QSZZ	AN	EG	N	C	HL harness 1 (100V series)
	DHAi-0057QSZZ	AN	EG	N	C	HL harness 1 (200V series)

22 Harness



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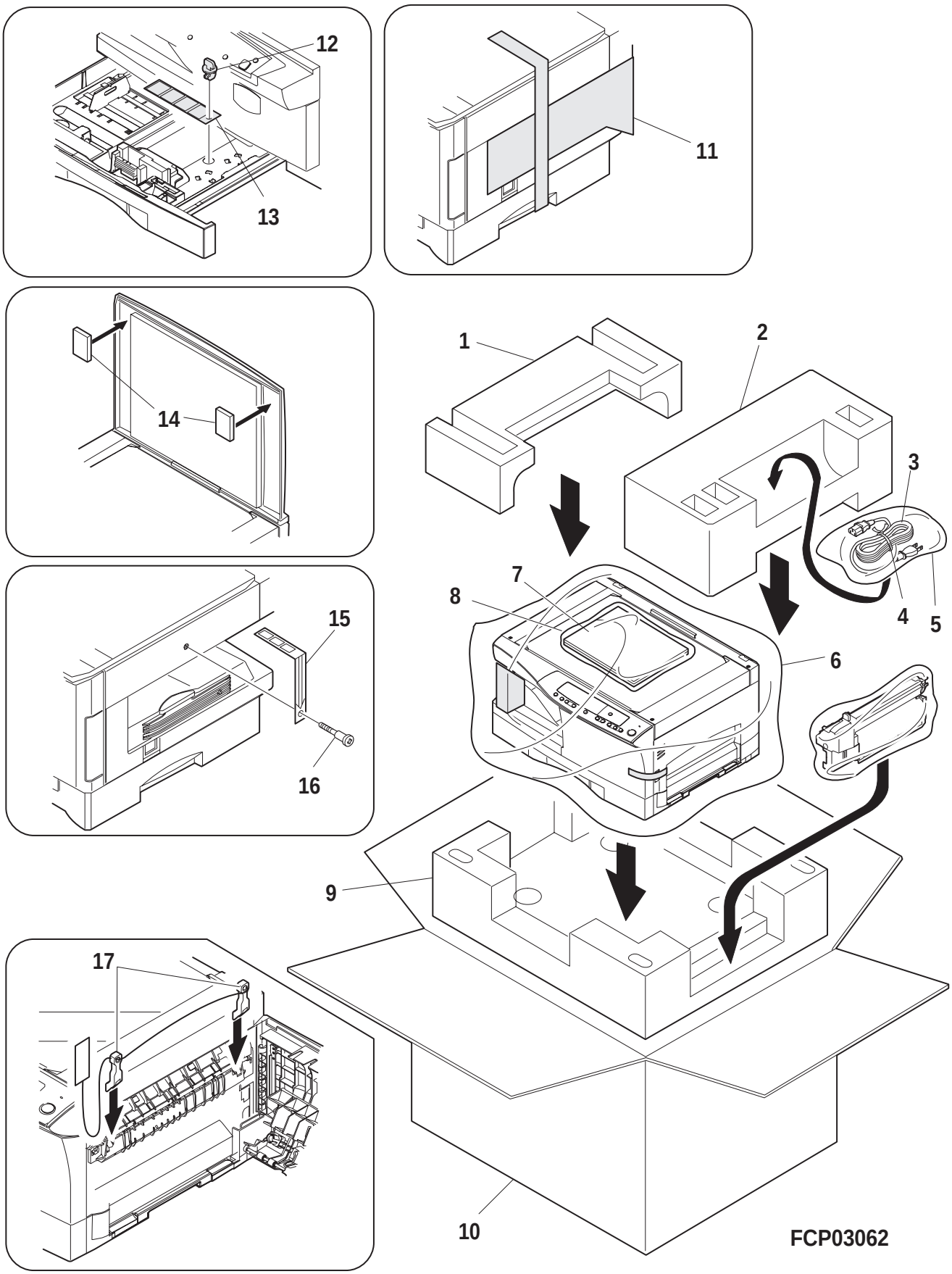
23 Packing material & Accessories

NO.	PARTS CODE	PRICE RANK Ex.	PRICE RANK Ja.	NEW MARK	PART RANK	DESCRIPTION	
1	SPAKA0049QSZZ	AP	EQ	N	D	Top packing cushion Left	
2	SPAKA0048QSZZ	AP	EQ	N	D	Top packing cushion Right	
⚠	QACCJ9610QCZZ	AR	EZ		B	AC cord (Japan)	
⚠	QACCD7618QCZZ	AQ	EQ		B	AC cord (USA,CANADA)	
⚠ 3	QACCL7621QCZZ	AX	FQ		B	AC cord (Australia)	
⚠	QACCB7620QCN1	AX	FX		B	AC cord (U,Kingdom)	
⚠	QACCV6621QCN1	AU	FQ		B	AC cord (For Europe)	
4	UBNDA0001FCZZ	AA	DD		C	AC cord band	
5	SSAKA5003CCZZ	AA	DD		D	Vinyl bag (140×260mm)	
6	UBAGF0039FCZZ	AG	DS		D	Vinyl bag for body	
	TiNSJ0065QSZZ	AU	ZZ	N	D	Operation manual (Japanese)	
	TiNSE0067QSZZ	AM	EG	N	D	Operation manual (USA)	
7	TiNSE0078QSZZ	AQ	EQ	N	D	Operation manual (U.Kingdom)	
	TiNSE0069QSZZ	AX	FG	N	D	Operation manual (English)	
	TiNSF0071QSZZ	AX	FG	N	D	Operation manual (French)	
8	SSAKA2347QCZZ	AB	DD		D	Vinyl bag (240×300mm)	
9	SPAKA0047QSZZ	AX	FG	N	D	Bottom packing cushion	
	SPAKC0052QS40	AY	FQ	N	D	Packing case (USA)	(AL-1000)
	SPAKC0052QS41	AY	FQ	N	D	Packing case (CANADA)	(AL-1000)
	SPAKC0052QS16	AY	FQ	N	D	Packing case (Australia)	(AL-1000)
	SPAKC0052QS34	AY	FQ	N	D	Packing case (For Europe Except Germany,U,Kingdom)	(AL-1000)
	SPAKC0052QS22	AY	FQ	N	D	Packing case (U,Kingdom)	(AL-1000)
	SPAKC0052QS28	AY	FQ	N	D	Packing case (Germany)	(AL-1000)
10	SPAKC0052QSZZ	AY	FQ	N	D	Packing case (Japan)	(AL-1001)
	SPAKC0052QS11	AY	FQ	N	D	Packing case (Japan)	(AL-1200)
	SPAKC0052QS46	AY	FQ	N	D	Packing case (USA)	(AL-1200)
	SPAKC0052QS48	AY	FQ	N	D	Packing case (CANADA)	(AL-1200)
	SPAKC0052QS17	AY	FQ	N	D	Packing case (Australia)	(AL-1200)
	SPAKC0052QS35	AY	FQ	N	D	Packing case (For Europe Except Germany,U,Kingdom)	(AL-1200)
	SPAKC0052QS23	AY	FQ	N	D	Packing case (U,Kingdom)	(AL-1200)
	SPAKC0052QS29	AY	FQ	N	D	Packing case (Germany)	(AL-1200)
11	SPAKA0050QSZZ	AE	DJ	N	D	Fixer packing cushion	
12	LHLDW1226FCZZ	AB	DJ		C	Turn fasner	
13	TTAG-0002QSZZ	AB	DJ	N	C	Tray rotation tag	
14	SPAKA0051QSZZ	AC	DJ	N	D	OC packing cushion	
15	TTAG-0003QSZZ	AC	DJ	N	C	Mirror fixing tag	
16	LX-BZ0001QSZZ	AD	DJ		C	2nd,3rd mirror unit fixing screw	
17	CLEVP0016QS01	AL	EB	N	C	Pressure block lever	
101	TCADZ0014QSZZ	AE	DJ	N	D	MSDS card (USA,CANADA,U,Kingdom)	
	TGANJ0005QSZZ	AL	EB	N	D	Warranty card (Japan)	(AL-1001)
102	TGANJ0006QSZZ	AL	EB	N	D	Warranty card (Japan)	(AL-1200)
	TGANE0009QSZZ	AL	EB	N	D	Warranty card (USA)	
	TCADS0764FCZ1	AD	DJ		D	Warranty card (U,Kingdom)	
103	TLABH3591FCZZ	AB	DJ		C	Service label (USA)	
104	SPAKA0068QSZZ	AD	DJ	N	D	Front exterior sub packing cushion (USA,CANADA)	(AL-1200)

23 Packing material & Accessories



24 MCU PWB

NO.	PARTS CODE	PRICE RANK Ex.	PRICE RANK Ja.	NEW MARK	PART RANK	DESCRIPTION
1	QCNCM0923FC14	AE	DJ		C	Connector (14pin) [CN105]
2	QCNCM0923FC18	AF	DS		C	Connector (18pin) [CN115]
3	QCNCM0923FC24	AF	DS		C	Connector (24pin) [CN109]
4	QCNCM1005MCZZ	AB	DD		C	Connector (2pin) [CN101]
5	QCNCM1069AC0D	AC	DD		C	Connector (4pin) [CN107]
6	QCNCM1119LC0E	AC	DJ	N	C	Connector (5pin) [CN104]
7	QCNCM2401SC0C	AB	DJ		C	Connector (3pin) [CN112]
8	QCNCM2401SC0D	AC	DJ		C	Connector (4pin) [CN113]
9	QCNCM2401SC0E	AC	DJ		C	Connector (5pin) [CN111]
10	QCNCM2401SC0F	AB	DJ		C	Connector (6pin) [CN108]
11	QCNCM7014SC0C	AA	DD		C	Connector (3pin) [CN102,117,122]
12	QCNCM7014SC0D	AB	DD		C	Connector (4pin) [CN103]
13	QCNCM7014SC0E	AB	DJ		C	Connector (5pin) [CN119]
14	QCNCP0340QCZZ	AC	DJ		C	Connector (3pin) [CN106]
15	QCNCW0012QSZZ	AH	DX	N	C	Connector (40pin) [CN110]
16	QCNCW0015QSZZ	AE	DJ	N	C	Connector (52147-0510) [CN120]
17	QCNCW1124LC0D	AB	DJ	N	C	Connector (4pin) [CN118]
18	QCNCW1124LC0H	AC	DJ		C	Connector (8pin) [CN114]
19	QCNCW1124LC1H	AD	DJ	N	C	Connector (18pin) [CN116]
20	QCNCW1124LC2F	AD	DJ		C	Connector (26pin) [CN123]
21	QCNCW1135LC3B	AF	DS	N	C	Connector (32pin) [CN121]
22	QSŌCZ0002GCZZ	AD	DJ		C	IC socket (40pin) [IC117]
23	QSŌCZ6408ACZZ	AB	DD		C	IC socket (8pin) [IC109]
24	RC-K1E104HCZT	AA	DD		C	Capacitor (25WV 0.1μF)
25	RCiLZ0003QSZZ	AC	DJ	N	C	Coil (HF50ACC201209) [L107~112]
26	RCiLZ0004QSZZ	AE	DJ	N	C	Coil (NFM839R02C470R101) [NF101,102]
27	RCiLZ1032CCZZ	AD	DJ		C	Coil (SBO-02SAN) [L101~106]
28	RCRSZ0001QSZZ	AG	DS	N	B	Crystal (19.6608MHZ) [X101]
29	RCRSZ0002QSZZ	AP	EQ	N	B	Crystal (15.4265074MHZ) [X103]
30	RCRSZ0003QSZZ	AP	EQ	N	B	Crystal (22MHZ) [X102]
31	RH-DZ0016FCZZ	AB	DD		B	Diode (MA700) [D118]
32	RMPTC6203QCJB	AC	DD	N	B	Block resistor (20KΩ×6 1/8W ±5%) [BR102,105,108,111,124]
33	RMPTC8203QCJB	AC	DD	N	B	Block resistor (20KΩ×8 1/8W ±5%) [BR101,103,104,106,107,109,110,112,115,127,128,129,130]
34	RMPTW4203QCJJ	AA	DD	N	B	Block resistor (20KΩ×4) [BR113,114,116,117,120,121,123,126]
35	RMPTW4470QCJJ	AB	DD		B	Block resistor (47Ω×4) [BR118,119,122,125]
36	TLABZ3405FCZZ	AB	DJ		C	Version label
37	VCCCTV1HH101J	AA	DD		C	Capacitor (50WV 100PF) [C134~139,159,160,172~177]
	VCCCTV1HH101J	AA	DD		C	Capacitor (50WV 100PF) [C180,181,182,186,190,200,201,203]
	VCCCTV1HH101J	AA	DD		C	Capacitor (50WV 100PF) [C204,205,216,218,222~228,235]
38	VCCCTV1HH120J	AA	DD		C	Capacitor (50WV 12PF) [C231]
39	VCCCTV1HH180J	AA	DD		C	Capacitor (50WV 18PF) [C143,150,242,243,244,246,247,248]
40	VCCCTV1HH330J	AA	DD		C	Capacitor (50WV 33PF) [C158,220,262,265,266,282,283,284,285,286,287,295,302]
41	VCCCTV1HH470J	AA	DD		C	Capacitor (50WV 47PF) [C145,146,185,194,196,206,260,264,306]
42	VCEAGU1CW106M	AA	DD		C	Capacitor (16WV 10μF) [C335,336,347,348]
43	VCEAGU1CW107M	AB	DD		C	Capacitor (16WV 100μF) [C360]
44	VCEAGU1CW226M	AA	DD		C	Capacitor (16WV 22μF) [C325,361]
45	VCEAGU1CW476M	AB	DD		C	Capacitor (16WV 47μF) [C338,345]
46	VCEAGU1EW106M	AA	DD		C	Capacitor (25WV 10μF) [C339]
47	VCEAGU1EW476M	AB	DD		C	Capacitor (25WV 47μF) [C357]
48	VCEAGU1HW474M	AA	DD		C	Capacitor (50WV 0.47μF) [C362]
49	VCEAGA1VW106M	AA	DD		C	Capacitor (35WV 10μF) [C334]
50	VCEAGA1VW226M	AC	DD		C	Capacitor (35WV 22μF) [C359]
51	VCEAGU1VW476M	AB	DD		C	Capacitor (35WV 47μF) [C321]
52	VCKYTV1EB104K	AA	DD		C	Capacitor (25WV 0.1μF) [C103,104,111,117,118,119,133,140,149,155,157,163~168]
	VCKYTV1EB104K	AA	DD		C	Capacitor (25WV 0.1μF) [C178,179,183,184,187,189,191,193,195,197,202,207~210,212]
	VCKYTV1EB104K	AA	DD		C	Capacitor (25WV 0.1μF) [C217,221,229,232,236,237,238,245,259,263,267,279,280,281,288]
	VCKYTV1EB104K	AA	DD		C	Capacitor (25WV 0.1μF) [C291,292,293,294,296,299,300,301]
53	VCKYTV1HB102K	AA	DD		C	Capacitor (50WV 1000PF) [C105,106,107,108,110,112,114,115,116,120,121]
	VCKYTV1HB102K	AA	DD		C	Capacitor (50WV 1000PF) [C123,124,125,128,129,130,131,132,142,147,148,153]
	VCKYTV1HB102K	AA	DD		C	Capacitor (50WV 1000PF) [C170,171,211,213,215,219,234,240,241,249,250,303,304,305]
54	VCKYTV1HB222K	AA	DD		C	Capacitor (50WV 2200PF) [C122,254,276,289]
55	VCKYTV1HB223K	AA	DD		C	Capacitor (50WV 0.022μF) [C109,127,141,154,156,188,192,230]
	VCKYTV1HB223K	AA	DD		C	Capacitor (50WV 0.022μF) [C233,239,251,268,290,297,298]
56	VCKYTW1HB104K	AC	DD		C	Capacitor (50WV 0.10μF) [C101,102,113]
57	VCKYTV1HB471K	AA	DD		C	Capacitor (50WV 470PF) [C257,273]
58	VHDDSS133//-1	AA	DD		B	Diode (DSS133) [D102~117,119~153]
59	VHD1N4005E/-1	AB	DJ	N	B	Diode (1N4005E) [D101]
60	VHEHZS5A1//-1	AC	DJ	N	B	Zener diode (HZS5A1) [ZD101]
61	VHiHG73C025FD	BE	GN	N	B	IC (HG73C025FD) [IC111]
62	VHiH8S/2350FP	AY	FQ	N	B	IC (H8S/2350FP) [IC110]
63	VHiLM358PS/-S	AC	DJ		B	IC (LM358PS) [IC124]
64	VHiM24C02WBN6	AG	DS	N	B	IC (M24C02WBN6) [IC109]

24 MCU PWB

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
65	VHiM51953BL-1	AF	DS		B	IC (M51953BL) [IC105]
66	VHiM66236FP-1	AT	EZ	N	B	IC (M66236FP) [IC115]
67	VHiNJM2903M/-	AD	DJ		B	IC (NJM2903M) [IC106,119]
68	VHiNJM3414M-1	AF	DX		B	IC (NJM3414M) [IC125]
69	VHiSLA7027MU/	AQ	EQ		B	IC (SLA7027MU) [IC118]
70	VHiSN74LS07NS	AF	DS		B	IC (SN74LS07NS) [IC113,116]
71	VHiTA7291S/-1	AF	DS		B	IC (TA7291S) [IC101]
72	VHiTC74HC14FN	AH	DX		B	IC (TC74HC14FN) [IC102]
73	VHiTC74HC151F	AG	DS	N	B	IC (TC74HC151F) [IC107,112]
74	VHiTD62503F/-	AG	DX		B	IC (TD62503F) [IC114]
75	VHiULN2003AN1	AE	DJ		B	IC (ULN2003AN1) [IC103,104]
76	VHi27C1024-80	AW	FG	N	B	IC (27C1024-80) [IC117]
77	VHi341256SJ12	AN	EG	N	B	IC (341256SJ12) [IC120~123]
78	VHi74VHC08/-1	AE	DS		B	IC (74VHC08) [IC108]
79	VHViCPN38//-1	AF	DS		B	Varistor (ICPN38) [CP101]
80	VRD-HT2EY121J	AA	DD		C	Resistor (1/4W 120Ω ±5%) [R112]
81	VRD-HT2EY151J	AA	DD		C	Resistor (1/4W 150Ω ±5%) [R108,110,113,116]
82	VRD-HT2EY221J	AA	DD		C	Resistor (1/4W 220Ω ±5%) [R109]
83	VRD-HT2EY241J	AA	DD		C	Resistor (1/4W 240Ω ±5%) [R101,102]
84	VRD-HT2EY432J	AA	DD		C	Resistor (1/4W 4.3KΩ ±5%) [R106]
85	VRD-HT2EY472J	AA	DD		C	Resistor (1/4W 4.7KΩ ±5%) [R105,107]
86	VRNHT2EK4301F	AB	DD	N	C	Resistor (1/4W 4.3KΩ ±1%)(AL-1000/AL-1001) [R111]
	VRNHT2EK2401F	AA	DD		C	Resistor (1/4W 2.4KΩ ±1%)(AL-1200) [R111]
87	VRS-HT3DAR22J	AA	DD		C	Resistor (2W 0.22Ω ±5%) [R103]
88	VRS-HT3DA1R0J	AB	DD		C	Resistor (2W 1.0Ω ±5%) [R114,115]
89	VRS-HT3DA102J	AA	DD		C	Resistor (2W 1.0KΩ ±5%) [R104]
90	VRS-TS2AD000J	AA	DD		C	Resistor (1/10W 0Ω ±5%) [R294,295]
91	VRS-TS2AD100J	AA	DD		C	Resistor (1/10W 10Ω ±5%) [R236,241,242,243,244,254,255,256,257,258,276,277]
	VRS-TS2AD100J	AA	DD		C	Resistor (1/10W 10Ω ±5%) [R278,279,287,288,289,290,291,303,304,355,356,357]
	VRS-TS2AD100J	AA	DD		C	Resistor (1/10W 10Ω ±5%) [R358,359,360,361,362,363,364,365,366,367,368]
92	VRS-TS2AD101J	AA	DD		C	Resistor (1/10W 100Ω ±5%) [R259,346,370]
93	VRS-TS2AD102F	AA	DD		C	Resistor (1/10W 1KΩ ±1%) [R220]
94	VRS-TS2AD102J	AA	DD		C	Resistor (1/10W 1.0KΩ ±5%) [R206,210,212,214,216,218,232,234,237,239,240]
	VRS-TS2AD102J	AA	DD		C	Resistor (1/10W 1.0KΩ ±5%) [R246,274,281,284,285,293,329,331,333,335,337]
95	VRS-TS2AD103F	AA	DD		C	Resistor (1/10W 10KΩ ±1%) [R219,342,352,372]
96	VRS-TS2AD103J	AA	DD		C	Resistor (1/10W 10KΩ ±5%) [R204,227,228,245,264,265,266,267,268]
	VRS-TS2AD103J	AA	DD		C	Resistor (1/10W 10KΩ ±5%) [R272,275,280,292,301,328,332,343]
97	VRS-TS2AD105F	AB	DD		C	Resistor (1/10W 1.0MΩ ±1%) [R349]
98	VRS-TS2AD122J	AA	DD		C	Resistor (1/10W 1.2KΩ ±5%) [R350]
99	VRS-TS2AD152J	AA	DD		C	Resistor (1/10W 1.5KΩ ±5%) [R261,262,263]
100	VRS-TS2AD153J	AA	DD		C	Resistor (1/10W 15KΩ ±5%) [R271,282]
101	VRS-TS2AD202J	AA	DD		C	Resistor (1/10W 2KΩ ±5%) [R302]
102	VRS-TS2AD203J	AA	DD		C	Resistor (1/10W 20KΩ ±5%) [R209,217,222,231,233,238,249,253]
	VRS-TS2AD203J	AA	DD		C	Resistor (1/10W 20KΩ ±5%) [R298,299,325,326,327,330,377]
103	VRS-TS2AD205J	AB	DD		C	Resistor (1/10W 2.0MΩ ±5%) [R351,373]
104	VRS-TS2AD242J	AA	DD		C	Resistor (1/10W 2.4KΩ ±5%) [R338,344]
105	VRS-TS2AD273J	AA	DD		C	Resistor (1/10W 27KΩ ±5%) [R260,269]
106	VRS-TS2AD300J	AA	DD		C	Resistor (1/10W 30Ω ±5%) [R353,354,400,401,402,403,404]
107	VRS-TS2AD301J	AA	DD		C	Resistor (1/10W 300Ω ±5%) [R371]
108	VRS-TS2AD331J	AA	DD		C	Resistor (1/10W 330Ω ±5%) [R235]
109	VRS-TS2AD332J	AA	DD		C	Resistor (1/10W 3.3KΩ ±5%) [R252]
110	VRS-TS2AD333J	AA	DD		C	Resistor (1/10W 33KΩ ±5%) [R215]
111	VRS-TS2AD393J	AA	DD		C	Resistor (1/10W 39KΩ ±5%) [R270,283]
112	VRS-TS2AD470J	AA	DD		C	Resistor (1/10W 47Ω ±5%) [R221,223,224,225,226,229,230,247,248,250,273,286,300,308~323]
113	VRS-TS2AD472J	AA	DD		C	Resistor (1/10W 4.7KΩ ±5%) [R203,336,348]
114	VRS-TS2AD473J	AA	DD		C	Resistor (1/10W 47KΩ ±5%) [R201,202,207,208,339,340]
115	VRS-TS2AD510J	AA	DD		C	Resistor (1/10W 51Ω ±5%) [NF103]
116	VRS-TS2AD512J	AA	DD		C	Resistor (1/10W 5.1KΩ ±5%) [R374]
117	VRS-TS2AD621F	AA	DD		C	Resistor (1/10W 620Ω ±1%) [R341]
118	VRS-TS2AD621J	AA	DD		C	Resistor (1/10W 620Ω ±5%) [R296,297]
119	VRS-TS2AD680J	AA	DD		C	Resistor (1/10W 68Ω ±5%) [R251]
120	VRS-TS2AD751J	AA	DD		C	Resistor (1/10W 750Ω ±5%) [R345]
121	VRS-TS2AD752J	AA	DD		C	Resistor (1/10W 7.5KΩ ±5%) [R205,211,334,347]
122	VRS-TS2AD912J	AA	DD		C	Resistor (1/10W 9.1KΩ ±5%) [R213]
123	VSDTA143XK/-1	AB	DD		B	Transistor (DTA143XK) [Q104]
124	VSDTC114EKA-1	AC	DJ		B	Transistor (DTC114EKA) [Q102]
125	VS2SA1036KQRC	AB	DD		B	Transistor (2SA1036KQRC) [Q101,103]
	(Unit)					
901	CPWBX0010QS52	CB	TZ	N	E	MCU PWB (10CPM)(AL-1000/AL-1001)
	CPWBX0010QS53	CH	UM	N	E	MCU PWB (12CPM)(AL-1200)

25 Operation PWB

NO.	PARTS CODE	PRICE RANK Ex.	PRICE RANK Ja.	NEW MARK	PART RANK	DESCRIPTION
1	PSPAZ0005QSZZ	AC	DJ	N	C	Spacer [for LEDM]
2	QCNCM0861FCZZ	AB	DJ		C	Connector (3pin) [CN802]
3	QCNCW1132LC1H	AD	DJ	N	C	Connector (18pin) [CN801]
4	QSW-P0005QSZZ	AC	DJ	N	B	Tact swtch (B3F-6102) [CLK,PSW,1UPK,10UPK,ZUPK,ZDWK,MAGK,CRSK,EXUPK,EXDWK,EXMODK]
	QSW-P0005QSZZ	AC	DJ	N	B	Tact swtch (B3F-6102)(AL-1001/AL-1200) [BPK]
5	VCCCTV1HH201J	AA	DD		C	Capacitor (50WV 200PF) [C904,905,906]
6	VCEAJU1CW476M	AB	DD		C	Capacitor (16WV 47μF) [C802]
7	VCKYTV1EB104K	AA	DD		C	Capacitor (25WV 0.10μF) [C907,908]
8	VCKYTV1HB102K	AA	DD		C	Capacitor (50WV 1000PF) [C909~920,922]
9	VCKYTV1HB223K	AA	DD		C	Capacitor (50WV 0.022μF) [C901,903]
10	VHDDSS133//-1	AA	DD		B	Diode (DSS133) [D801~810]
11	VHiLC7935//-1	AN	EQ		B	IC (LC7935) [IC901]
12	VHiTC74HC151F	AG	DS	N	B	IC (TC74HC151F) [IC902,903]
13	VHPLTC3650G01	AQ	EQ	N	B	Photo transistor (LTC3650G01) [LEDM]
14	VHPMPG3864K-J	AC	DJ		B	LED(Green) (MPG3864K-J) [RPL,ONLL,ZPL,1ENR,2ENR,NOR,1RE,2RE,3RE]
	VHPMPG3864K-J	AC	DJ		B	LED(Green) (MPG3864K-J) [CS1L,EXD,EXN,EXL,AE,ME,PE,PML]
	VHPMPG3864K-J	AC	DJ		B	LED(Green) (MPG3864K-J)(AL-1001/AL-1200) [BPL]
15	VHPMVR3864K-J	AC	DJ		B	LED(Red) (MVR3864K-J) [TPL,MPL,DPL,JPL]
16	VRS-TP2BD000J	AA	DD		C	Resistor (1/8W 0Ω ±5%)
17	VRS-TS2AD101J	AA	DD		C	Resistor (1/10W 100Ω ±5%) [R948~960]
18	VRS-TS2AD102J	AA	DD		C	Resistor (1/10W 1.0KΩ ±5%) [R932~935,944~946]
19	VRS-TS2AD103J	AA	DD		C	Resistor (1/10W 10KΩ ±5%) [R962]
20	VRS-TS2AD121J	AA	DD		C	Resistor (1/10W 120Ω ±5%) [R902~918]
21	VRS-TS2AD151J	AA	DD		C	Resistor (1/10W 150Ω ±5%) [R939~941]
22	VRS-TS2AD152J	AA	DD		C	Resistor (1/10W 1.5KΩ ±5%) [R936,937,938]
23	VRS-TS2AD472J	AA	DD		C	Resistor (1/10W 4.7KΩ ±5%) [R919~930,947]
24	VRS-TS2AD511J	AA	DD		C	Resistor (1/10W 510Ω ±5%) [R942,943]
25	VSDTB113ZK//-1	AD	DJ		B	Transistor (DTB113ZK) [Q901,902,903]
	(Unit)					
901	CPWBF0014QS51	BR	LX	N	E	Operation PWB (AL-1000)
	CPWBF0014QS52	BR	LX	N	E	Operation PWB (AL-1001/1200)

26 MFD sensor PWB

NO.	PARTS CODE	PRICE RANK Ex.	PRICE RANK Ja.	NEW MARK	PART RANK	DESCRIPTION
1	DHAi-0061QSZZ	AG	DS	N	C	MFD harness
2	LBNDJ0037FCZ1	AA	DJ		C	Wire band (T18S)
3	VCKYPU1HB102K	AA	DD		C	Capacitor (50WV 1000PF)
4	VHPGP1S53V//-1	AE	DS		B	Photo transistor (GP1S53V)
	(Unit)					
901	CPWBF1177FC5B	AG	DX	N	E	MFD sensor PWB

27 POD sensor PWB

NO.	PARTS CODE	PRICE RANK Ex.	PRICE RANK Ja.	NEW MARK	PART RANK	DESCRIPTION
1	DHAi-0034QSZZ	AQ	EQ	N	C	POD harness
2	LBNDJ0037FCZ1	AA	DJ		C	Wire band (T18S)
3	VCKYPU1HB102K	AA	DD		C	Capacitor (50WV 1000PF)
4	VHPGP1S53V//-1	AE	DS		B	Photo transistor (GP1S53V)
	(Unit)					
901	CPWBF1177FC57	AG	DX	N	E	POD sensor PWB

28 PPD1 sensor PWB

NO.	PARTS CODE	PRICE RANK Ex.	PRICE RANK Ja.	NEW MARK	PART RANK	DESCRIPTION
1	DHAi-0035QSZZ	AF	DS	N	C	PPD1 harness
2	LBNDJ0037FCZ1	AA	DJ		C	Wire band (T18S)
3	VCKYPU1HB102K	AA	DD		C	Capacitor (50WV 1000PF)
4	VHPGP1S53V//-1	AE	DS		B	Photo transistor (GP1S53V)
	(Unit)					
901	CPWBF1177FC58	AG	DX	N	E	PPD1sensor PWB

29 PPD2 sensor PWB

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION
		Ex.	Ja.			
1	DHAi-0036QSZZ	AQ	EQ	N	C	PPD2 harness
2	LBNDJ0037FCZ1	AA	DJ		C	Wire band (T18S)
3	VCKYPU1HB102K	AA	DD		C	Capacitor (50WV 1000PF)
4	VHPGP1S53V/-1	AE	DS		B	Photo transistor (GP1S53V)
	(Unit)					
901	CPWBF1177FC59	AG	DX	N	E	PPD2 sensor PWB

30 DC power supply PWB

NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ex.	Ja.				
1	QPLGJ2326YAZZ	AB	DD		C	Connector (B2P3-VH)	[CN11]
2	QPLGZ0430PAZZ	AE	DJ	N	C	Connector (B6-PH-K-S)(6PIN)	[CN6]
3	QPLGZ0557PAZZ	AD	DJ	N	C	Connector (B02P-NV)	[CN10]
4	QPLGZ0558PAZZ	AE	DS	N	C	Connector (B04P-XL)(100V series)	[CN3]
	QPLGZ0560PAZZ	AF	DS	N	C	Connector (B04P-XL)(RED)(200Vseries)	[CN3]
5	QPLGZ0559PAZZ	AG	DS	N	C	Connector (B14B-PH-DSS)	[CN1]
6	RATTT0004PAZZ	AP	EQ	N	B	Arrestor (DSA-242MA-05F25)(100V series)	[A1]
7	RC-EZ0398PAZZ	AV	FG	N	C	Capacitor (680MF/200V MXR)(100V/110V)	[C6]
	RC-EZ0425PAZZ	AR	EQ	N	C	Capacitor (MXR470MF 200V)(120V/127V)	[C6]
	RC-EZ0382PAZZ	AR	EQ	N	C	Capacitor (MXR120MF/400V)(200V series)	[C6]
8	RC-FZ137DPAZZ	AE	DJ	N	C	Capacitor (PA 0.1MF/250V)	[C16]
9	RC-FZ138DPAZZ	AE	DS	N	C	Capacitor (PA 0.22MF/250V)	[C3,4B]
10	RC-FZ140DPAZZ	AG	DX	N	C	Capacitor (0.47MF/250V)(200V series)	[C1B]
11	RC-KZ4012PAZZ	AD	DJ	N	C	Capacitor (ECKD3A332KB)	[C123]
12	RC-KZ4013PAZZ	AC	DD	N	C	Capacitor (ECKD3A102KB)	[C143]
13	RC-KZ4014PAZZ	AC	DD	N	C	Capacitor (ECKD3A471KBP)	[C10,121,141]
14	RC-KZ4015PAZZ	AC	DD	N	C	Capacitor (KBP 2200PF/1KV)	[C50]
15	RC-KZ4018PAZZ	AF	DS	N	C	Capacitor (ECKD4A101MDU)	[C182]
16	RC-QZ0218PAZZ	AC	DD	N	C	Capacitor (TS 2200PF/250V)(100V series)	[C4,5,11]
	RC-QZ0230PAZZ	AE	DJ	N	C	Capacitor (2200PF/250V)(200V series)	[C4,5,11]
17	RC-QZ0221PAZZ	AD	DJ	N	C	Capacitor (0.01MF/250V)(100V series)	[C7]
	RC-QZ0222PAZZ	AD	DJ	N	C	Capacitor (0.001MF/630V)(200V series)	[C7]
18	RC-QZ0232PAZZ	AE	DS	N	C	Capacitor (4700PF/250V)(200V series)	[C2B,C3B]
19	RC-QZA102PARK	AC	DD	N	C	Capacitor (102PF/K/50V)	[C20]
20	RC-QZA103PARK	AC	DD	N	C	Capacitor (103PF/K/50V)	[C8,22,122]
21	RC-QZA104PARK	AC	DD	N	C	Capacitor (104PF/K/50V)	[C13,17,21]
22	RC-QZA223PARK	AC	DD	N	C	Capacitor (223PF/K/50V)	[C14,C142]
23	RC-QZA273PARK	AC	DD	N	C	Capacitor (273PF/K/50V)	[C105,161]
24	RC-QZA472PARK	AC	DD	N	C	Capacitor (472PF/K/50V)	[C9]
25	RC-QZA473PARK	AC	DD	N	C	Capacitor (473PF/K/50V)	[C102,162]
26	RCORF4092PAZZ	AC	DJ	N	C	Core	[BJ2,3]
27	RH-iX1783PAZZ	AF	DS	N	B	IC (1CP-N25)	[ICP101]
28	RH-iX1950PAZZ	AF	DS		B	IC (HA17431PA)	[IC1,2]
29	RH-iX2251PAZZ	AR	EQ	N	B	IC (PQ30RV31)	[IC52]
30	RH-iX2257PAZZ	AK	EB	N	B	IC (BA033T/FP)	[IC53]
31	RH-iX2258PAZZ	AH	DX	N	B	IC (78M12)	[IC51]
32	RH-PX0296PAZZ	AF	DS	N	B	Photo coupler (PC817X2)(100V series)	[PC1,3]
	RH-PX0285PAZZ	AF	DS		B	Photo coupler (PC123Y(2))(200V series)	[PC1,3]
33	RH-PX0307PAZZ	AK	DX	N	B	Photo thyristor (S11MD5V)(100V series)	[PC2]
	RH-PX0308PAZZ	AM	EG	N	B	Photo thyristor (S21ME3)(200V series)	[PC2]
34	RR-HZ4022PAZZ	AD	DJ	N	C	Resistor (1/2W 206J)	[R146,181,182]
35	RR-HZ4023PAZZ	AD	DJ	N	C	Resistor (1/2W 306J)	[R125]
36	RR-HZ4024PAZZ	AD	DJ	N	C	Resistor (1/2W 186J)	[R183,184]
37	RR-SN1201PA6F	AB	DD	N	C	Resistor (1/6W 122J)	[R25]
38	RR-SN3900PA6F	AB	DD	N	C	Resistor (1/6W 391J)	[R26]
39	RR-SZ0034PAZZ	AC	DD		C	Resistor (2W-22Ω)	[R9]
40	RR-SZ0048PAZZ	AC	DD	N	C	Resistor (RSS2L15 1KΩ)	[R69,71,73]
41	RR-SZ0057PAZZ	AC	DD	N	C	Resistor (2W-330J)	[R3]
42	RR-WZ0028PAZZ	AF	DX		C	Resistor (5W-3K RGBS)(100V series)	[R1B]
43	RR-XZ0051PAZZ	AC	DD	N	C	Resistor (RF16S-4.7J)	[R4]
44	RR-XZ0078PAZZ	AC	DD		C	Resistor (FUSE-R 1/6W-33J)	[R12]
45	RR-XZ4002PAZZ	AC	DD	N	C	Resistor (1/4W 121J)	[R15,17]
46	RR-XZ4003PAZZ	AC	DD	N	C	Resistor (1/4W 101J)	[R16]
47	RRLYZ0100PAZZ	AN	EG	N	B	Relay (OMI-SS-124LM)	[RY1]
⚠ 48	RTRNF5025PAZZ	BA	FX	N	B	MC transformer	[T101]
⚠ 49	RTRNF5026PAZZ	BA	FX	N	B	TC transformer	[T102]
⚠ 50	RTRNZ0202PACN	AL	EB	N	B	Line filter (Z0202)(100V/110V)	[L1,2]
⚠	RTRNZ0202PANT	AL	EB	N	B	Line filter (Z0202)(120V/127V)	[L1,2]
⚠	RTRNZ0499PACT	AL	EB	N	B	Line filter (Z0499)(200V series)	[L1,2]
⚠ 51	RTRNZ0609PANT	AW	FG	N	B	Transformer (Z0609)(100V/110V)	[T1]
⚠	RTRNZ0609PACD	AW	FG	N	B	Transformer (Z0609)(120V/127V)	[T1]
⚠	RTRNZ0610PACD	AW	FG	N	B	Transformer (Z0610)(200V series)	[T1]
⚠ 52	RTRNZ0617PANT	AR	EQ	N	B	Line filter (Z0617)(200V series)	[L1B]
⚠ 53	RTRNZ0618PANT	AP	EQ	N	B	Line filter (Z0618)(200V series)	[L3]
54	RVR-M0384PAZZ	AD	DJ	N	B	Variable resistor (EVMAASA00 200KJ)	[VR121,142]
55	RVR-M0390PAZZ	AD	DJ	N	B	Variable resistor (VR-1K)	[VR1]

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NO.	PARTS CODE	PRICE RANK		NEW MARK	PART RANK	DESCRIPTION	
		Ex.	Ja.				
56	RVR-M0391PAZZ	AD	DJ	N	B	Variable resistor (VR-3K)	[VR101]
57	RVR-M0392PAZZ	AD	DJ	N	B	Variable resistor (VR-10KJ)	[VR161]
58	RVR-M0395PAZZ	AD	DJ	N	B	Variable resistor (VR-150KJ)	[VR141]
59	VCEAFU1EM227M	AC	DD	N	C	Capacitor (YXF 220MF/25V)	[C53]
60	VCEAFU1HM105M	AC	DD		C	Capacitor (YXF 1MF/50V)	[C55]
61	VCEAFU1HM475M	AC	DD	N	C	Capacitor (YXF 4.7MF/50V)	[C104,164]
62	VCEAFU1VM336M	AC	DD	N	C	Capacitor (YXF 33MF/35V)	[C56~58]
63	VCEAFU1VM476M	AD	DD	N	C	Capacitor (YXF 47MF/35V)	[C101]
64	VCEAFV1AM228M	AF	DS	N	C	Capacitor (YXF 2200MF/10V)	[C54]
65	VCEAFV1VM108M	AF	DS	N	C	Capacitor (YXF 1000MF/35V)	[C51,52]
66	VHD1N4003//-1	AC	DJ	N	B	Diode (1N4003-G23)	[D164]
67	VHD1N4005//-1	AC	DJ	N	B	Diode (1N4005-G23)	[D5,6]
68	VHD1SS244//-1	AC	DJ	N	B	Diode (1SS244)	[D2]
69	VHD1SS270A/-1	AA	DD		B	Diode (1SS270A)	[D3,54,101,102,105]
70	VHDD5SBA60/-1	AH	DX		B	Diode (D5SBA60)(100V series)	[DB1]
	VHDD3SBA60/-1	AG	DX		B	Diode (D3SBA60)(200V series)	[DB1]
71	VHDDSK10C//-1	AB	DJ		B	Diode (DSK10C)	[D104]
72	VHDERA2206/-1	AD	DJ		B	Diode (ERA22-06)(100V series)	[D1]
	VHDERA2208/-1	AD	DJ		B	Diode (ERA22-08)(100V series)	[D122]
	VHDERA2208/-1	AD	DJ		B	Diode (ERA22-08)(200V series)	[D1,122]
73	VHDERA9202/-1	AE	DJ	N	B	Diode (ERA92-02)	[D52]
74	VHDESJA5210-1	AE	DS	N	B	Diode (ESJA52-10)	[D181,182]
75	VHDYG801C04-1	AG	DX	N	B	Diode (YG801C04)	[D53]
76	VHDYG901C2/-1	AG	DX		B	Diode (YG901C2)	[D51]
77	VHERD16ESB1-1	AC	DJ	N	B	Zener diode (RD16ES B1)(100V/110V)	[ZD141,142,145,146]
	VHERD39ESB1-1	AC	DJ	N	B	Zener diode (RD39ESB1(A))(120V/127V/200V series)	[ZD141,142,145,146]
78	VHERD20ESB2-1	AC	DJ	N	B	Zener diode (RD20ES B2)	[ZD2]
79	VHERD3.0ESB11	AC	DJ	N	B	Zener diode (RD3.0ESAB1)	[ZD101]
80	VHERD30ESB1-1	AC	DJ	N	B	Zener diode (RD30ESB1(A))	[ZD53]
81	VHERD39ESB1-1	AC	DJ	N	B	Zener diode (RD39ESB1(A))(100V/110V)	[ZD1]
	VHERD16ESB1-1	AC	DJ	N	B	Zener diode (RD16ES B1)(120V/127V/200V series)	[ZD1]
82	VHERD4.7ESB11	AC	DJ	N	B	Zener diode (RD4.7ESAB1)	[ZD102]
83	VHERD5.1ESB21	AC	DJ	N	B	Zener diode (RD5.1ES B2)	[ZD162]
84	VHERD5.6ESB21	AC	DJ	N	B	Zener diode (RD5.6ESAB2)	[ZD103]
85	VHERD5.6ESB31	AC	DJ	N	B	Zener diode (RD5.6ES-B3)	[ZD161,163]
86	VHERD6.8ESB11	AC	DJ	N	B	Zener diode (RD6.8ESAB1)	[ZD121,143]
87	VHH4D18////-1	AK	EB	N	B	Power thermistor (4D18)(100V series)	[TH1]
	VHH8D13////-1	AK	DS	N	B	Power thermistor (8D13)(200V series)	[TH1]
88	VHSTF321S//-1	AG	DX		B	Thyristor (TF321S)	[SCR51]
89	VHSTM1641P/-F	AT	EZ	N	B	Thyristor (TM1641P-L(L))(100V series)	[TRC1]
	VHSTM1661P/-F	AT	EZ	N	B	Thyristor (TM1661P-L(L))(200V series)	[TRC1]
90	VHVC271D10A-1	AD	DJ		B	Varistor (C271D10A)(100V series)	[ZR1]
	VHVC471D10A-1	AE	DJ		B	Varistor (C471D10A)(200V series)	[ZR1]
91	VRD-ST2CD103J	AA	DD		C	Resistor (ST1/6S-10KJ)	[R29,101,105,108,110,121]
92	VRD-ST2CD104J	AA	DD		C	Resistor (ST1/6S-100KJ)(100V series)	[R18,19,127,128,148,149]
	VRD-ST2CD224J	AB	DD	N	C	Resistor (ST1/6S-220KJ)(200V series)	[R18,19]
	VRD-ST2CD104J	AA	DD		C	Resistor (ST1/6S-100KJ)(200V series)	[R127,128,148,149]
93	VRD-ST2CD105J	AA	DD		C	Resistor (ST1/6S-1MJ)	[R123,144]
94	VRD-ST2CD122J	AA	DD		C	Resistor (ST1/6S-1.2KJ)	[R13]
95	VRD-ST2CD123J	AA	DD		C	Resistor (ST1/6S-12KJ)	[R5]
96	VRD-ST2CD153J	AA	DD		C	Resistor (ST1/6S-15KJ)	[R7]
97	VRD-ST2CD181J	AA	DD		C	Resistor (ST1/6S-180J)	[R109,168]
98	VRD-ST2CD182J	AA	DD		C	Resistor (ST1/6S-1.8KJ)	[R24]
99	VRD-ST2CD183J	AA	DD		C	Resistor (ST1/6S-18KJ)	[R142,163,104,141]
100	VRD-ST2CD223J	AA	DD		C	Resistor (ST1/6S-22KJ)	[R6,27]
101	VRD-ST2CD334J	AB	DD	N	C	Resistor (ST1/6S-330KJ)(100V series)	[R20]
	VRD-ST2CD274J	AB	DD	N	C	Resistor (ST1/6S-270KJ)(100V series)	[R21,145]
	VRD-ST2CD684J	AB	DD	N	C	Resistor (ST1/6S-680KJ)(100V series)	[R143]
	VRD-ST2CD684J	AB	DD	N	C	Resistor (ST1/6S-680KJ)(200V series)	[R20,21,143]
	VRD-ST2CD274J	AB	DD	N	C	Resistor (ST1/6S-270KJ)(200V series)	[R145]
102	VRD-ST2CD330J	AA	DD		C	Resistor (ST1/6S-33J)	[R68]
103	VRD-ST2CD331J	AA	DD		C	Resistor (ST1/6S-330J)	[R14]
104	VRD-ST2CD333J	AA	DD		C	Resistor (ST1/6S-33KJ)	[R23]
105	VRD-ST2CD394J	AB	DD	N	C	Resistor (ST1/6S-390KJ)	[R124]
106	VRD-ST2CD472J	AA	DD		C	Resistor (ST1/6S-4.7KJ)	[R58,122,129]
107	VRD-ST2CD473J	AA	DD		C	Resistor (ST1/6S-47KJ)	[R22,28]
108	VRD-ST2CD474J	AA	DD		C	Resistor (ST1/6S-470KJ)	[R2B]
109	VRD-ST2CD562J	AA	DD		C	Resistor (ST1/6S-5.6KJ)	[R111]
110	VRD-ST2CD563J	AB	DD	N	C	Resistor (ST1/6S-56KJ)	[R8,106,165]
111	VRD-ST2CD681J	AB	DD	N	C	Resistor (ST1/6S-680J)	[R107,166]
112	VRD-ST2CD822J	AA	DD		C	Resistor (ST1/6S-8.2KJ)	[R30]
113	VRD-ST2EF105J	AB	DD	N	C	Resistor (ST1/4S-1MJ)	[R150~152]
114	VRD-ST2EF155J	AA	DD		C	Resistor (ST1/4S-1.5MJ)	[R153~155]
115	VRD-ST2HF104J	AA	DD		C	Resistor (ST1/2S-100KJ)	[R2]
116	VS2SA1175H/-1	AC	DJ	N	B	Transistor (2SA1175-HF)	[Q121,141,142,101,161]
117	VS2SA1920P/-1	AE	DS	N	B	Transistor (2SA1920P)	[Q122,143]
118	VS2SC1213-C1A	AC	DD		B	Transistor (2SC1213C)	[Q2]
119	VS2SC2785F/-1	AC	DJ	N	B	Transistor (2SC2785-FF)	[Q3,102,162]
120	VS2SD1266AP-1	AK	DX	N	B	Transistor (2SD1266A-P)(100V series)	[Q103]
	VS2SD1266AP-1	AK	DX	N	B	Transistor (2SD1266A-P)(200V series)	[Q103,163]

30 DC power supply PWB

NO.	PARTS CODE	PRICE RANK Ex.	PRICE RANK Ja.	NEW MARK	PART RANK	DESCRIPTION	
121	VS2SK2081//1A	AR	EQ	N	B	Transistor (2SK2081)(100V series)	[Q1]
	VS2SK1944//-1	AS	EZ	N	B	Transistor (2SK1944)(200V series)	[Q1]
⚠ 122	QFS-A2700QCZZ	AD	DJ		A	Fuse (125V/20A)(100V/110V)	[F1,2]
⚠	QFS-B0030FCZZ	AH	DS		A	Fuse (250V/15A)(120V/127V)	[F1]
⚠	QFS-C1500QCZZ	AF	DS		A	Fuse (240V/10A)(200V series)	[F1]
⚠ 123	QFS-A0052PAZZ	AE	DJ	N	A	Fuse (125V/5A)(100V/110V)	[F3]
⚠	QFS-F0030PAZZ	AE	DJ	N	A	Fuse (125V/5A)(120V/127V)	[F3]
⚠	QFS-C0056PAZZ	AE	DS	N	A	Fuse (250V/3.15A)(200V series)	[F3]
	(Unit)						
⚠ 901	CPWBF0017QS31	BV	NU	N	E	DC power supply PWB (100V/110V)	
⚠	CPWBF0017QS32	BU	NN	N	E	DC power supply PWB (120V/127V)	
⚠	CPWBF0017QS34	BV	RB	N	E	DC power supply PWB (200V series)	

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PARTS CODE	JAPAN ONLY ORDER CODE	NO.	PRICE R. Ex.	PRICE R. Ja.	NEW	P/R
【C】						
CBTN-0004QS01	572 170 0441	3- 5	AE	DS	N	C
CBTN-0009QS01	572 170 0442	3- 2	AG	DS	N	C
CCAB-0003QS01	572 107 1749	1- 1	AR	EQ	N	D
CCASP0001QS51	572 108 1263	21-901	BC	GJ	N	E
CCLEZ0005QS51	572 704 0073	15- 1	AQ	EQ	N	E
〃	572 704 0073	16- 1	AQ	EQ	N	E
CCŌVH0004QS51	572 110 1072	2-901	BC	GD	N	E
CDAiU0002QS01	572 210 1087	5- 12	BG	GT	N	C
〃	572 210 1087	6- 14	BG	GT	N	C
CDAiU0008QS51	572 210 1098	6- 7	BC	GJ	N	E
CFiX-0003QS01	572 211 0680	1- 13	AN	EG	N	C
CFiX-0003QS02	572 211 0681	1- 13	AN	EG	N	C
CFiX-0003QS04	572 211 0682	1- 13	AN	EG	N	C
CFiX-0003QS51	572 211 0678	1-501	AZ	FQ	N	E
CFiX-0003QS52	572 211 0684	1-501	BA	FX	N	E
CFiX-0003QS54	572 211 0685	1-501	BA	FX	N	E
CFRM-0006QS51	572 213 1861	17-502	BE	GN	N	E
CFRM-0007QS51	572 213 1876	17-501	BF	GN	N	E
CFRM-0010QS51	572 213 1862	18-502	BG	GN	N	E
CGERH0011QS51	572 281 1780	14- 9	AE	DS	N	E
CHAi-0028QS51	572 427 1633	19- 3	AL	EB	N	E
CHAi-0032QS51	572 427 1634	19- 2	AL	EB	N	E
CHLDZ0010QS51	572 214 1882	4- 18	AX	FG	N	E
〃	572 214 1882	20-901	AX	FG	N	E
CHLDZ0019QS31	572 214 1865	5- 2	BC	GJ	N	E
〃	572 214 1865	8-901	BC	GJ	N	E
CLEVP0016QS01	572 248 1108	23- 17	AL	EB	N	C
CPLTM0023QS01	572 221 6936	17- 5	AG	DX	N	C
〃	572 221 6936	18- 25	AG	DX	N	C
CPLTM0024QS01	572 221 6937	11- 24	AG	DX	N	C
CPLTM0025QS01	572 221 6938	5- 21	AH	DX	N	C
CPLTM0026QS01	572 221 6939	5- 8	AH	DX	N	C
CPLTM0028QS01	572 221 6940	8- 13	AH	DX	N	C
CPLTM0029QS01	572 221 6941	8- 9	AH	DX	N	C
CPLTM0042QS01	572 221 6942	14- 20	AZ	FQ	N	C
CPLTM0042QS51	572 221 6976	14-901	BP	LP	N	E
CPNLC0002QS01	572 158 0591	1- 6	AV	FG	N	D
〃	572 158 0591	3- 10	AV	FG	N	D
CPNLC0002QS03	572 158 0592	1- 6	AV	FG	N	D
〃	572 158 0592	3- 10	AV	FG	N	D
CPNLC0002QS04	572 158 0594	1- 6	AW	FG	N	D
〃	572 158 0594	3- 10	AW	FG	N	D
CPNLC0002QS07	572 158 0593	1- 6	AV	FG	N	D
〃	572 158 0593	3- 10	AV	FG	N	D
CPNLC0002QS08	572 158 0595	1- 6	AW	FG	N	D
〃	572 158 0595	3- 10	AW	FG	N	D
CPWBF0014QS51	572 684 3211	3- 8	BR	LX	N	E
〃	572 684 3211	25-901	BR	LX	N	E
CPWBF0014QS52	572 684 3212	3- 8	BR	LX	N	E
〃	572 684 3212	25-901	BR	LX	N	E
CPWBF0017QS31	572 684 3204	12- 13	BV	NU	N	E
〃	572 684 3204	30-901	BV	NU	N	E
CPWBF0017QS32	572 684 3205	12- 13	BU	NN	N	E
〃	572 684 3205	30-901	BU	NN	N	E
CPWBF0017QS34	572 684 3181	12- 13	BV	RB	N	E
〃	572 684 3181	30-901	BV	RB	N	E
CPWBF1177FC57	572 684 3194	9- 4	AG	DX	N	E
〃	572 684 3194	27-901	AG	DX	N	E
CPWBF1177FC58	572 684 3195	11- 1	AG	DX	N	E
〃	572 684 3195	28-901	AG	DX	N	E
CPWBF1177FC59	572 684 3196	13- 13	AG	DX	N	E
〃	572 684 3196	29-901	AG	DX	N	E
CPWBF1177FC5A	572 684 3192	6- 9	AG	DX	N	E
CPWBF1177FC5B	572 684 3193	17- 1	AG	DX	N	E
〃	572 684 3193	26-901	AG	DX	N	E
CPWBX0010QS52	572 684 3201	12- 8	CB	TZ	N	E
〃	572 684 3201	24-901	CB	TZ	N	E
CPWBX0010QS53	572 684 3215	12- 8	CH	UM	N	E
〃	572 684 3215	24-901	CH	UM	N	E
CREFL0003QS31	572 432 0067	5- 3	BQ	LP	N	E
CRŌLP0015QS01	572 287 1830	11- 20	AU	EZ	N	C
CSLi-0103FC31	572 256 0015	8- 7	AF	DS		E
CSŌU-0002QS51	572 226 0571	18-501	AW	EZ	N	E
CSŌU-0002QS52	572 226 0578	18-501	AY	FQ	N	E
CSW-M0004QS51	572 530 0670	15- 4	AS	EQ	N	E
〃	572 530 0670	16- 4	AS	EQ	N	E
CTHM-0019FC52	572 644 0027	13- 12	AU	FG	N	E
CTME-0229FC03	572 420 0297	13- 11	AG	DX	N	B

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【D】						
DHAi-0029QSZZ	572 542 1338	10- 24	AN	EG	N	C
〃	572 542 1338	12- 12	AN	EG	N	C
〃	572 542 1338	22- 8	AN	EG	N	C
DHAi-0030QSZZ	572 542 1339	13- 16	AN	EG	N	C
DHAi-0034QSZZ	572 542 1342	27- 1	AQ	EQ	N	C
DHAi-0035QSZZ	572 542 1343	28- 1	AF	DS	N	C
DHAi-0036QSZZ	572 542 1344	29- 1	AQ	EQ	N	C
DHAi-0037QSZ1	572 542 1414	10- 23	AS	EQ	N	C
〃	572 542 1414	12- 7	AS	EQ	N	C
〃	572 542 1414	22- 7	AS	EQ	N	C
DHAi-0038QSZZ	572 542 1346	10- 27	AS	EQ	N	C
〃	572 542 1346	22- 6	AS	EQ	N	C
DHAi-0039QSZZ	572 542 1347	12- 6	BD	GJ	N	C
〃	572 542 1347	22- 3	BD	GJ	N	C
DHAi-0040QSZZ	572 542 1348	1- 7	AK	DX	N	C
〃	572 542 1348	9- 10	AK	DX	N	C
〃	572 542 1348	22- 4	AK	DX	N	C
DHAi-0041QSZZ	572 542 1349	5- 6	AF	DS	N	C
〃	572 542 1349	6- 3	AF	DS	N	C
〃	572 542 1349	22- 1	AF	DS	N	C
DHAi-0042QSZZ	572 542 1350	6- 5	AK	EB	N	C
〃	572 542 1350	22- 2	AK	EB	N	C
DHAi-0045QSZZ	572 542 1351	14- 27	AD	DJ	N	C
〃	572 542 1351	22- 5	AD	DJ	N	C
DHAi-0046QSZZ	572 542 1352	10- 18	AH	DX	N	C
DHAi-0047QSZZ	572 542 1353	4- 12	AH	DX	N	C
DHAi-0048QSZZ	572 542 1354	10- 19	AG	DX	N	C
DHAi-0049QSZZ	572 542 1355	1- 8	AG	DS	N	C
〃	572 542 1355	11- 39	AG	DS	N	C
DHAi-0050QSZZ	572 542 1356	11- 27	AR	EQ	N	C
DHAi-0057QSZZ	572 542 1358	10- 24	AN	EG	N	C
〃	572 542 1358	12- 12	AN	EG	N	C
〃	572 542 1358	22- 8	AN	EG	N	C
DHAi-0058QSZZ	572 542 1359	13- 16	AL	EB	N	C
DHAi-0059QSZZ	572 542 1360	7- 3	AQ	EQ	N	C
DHAi-0061QSZZ	572 542 1361	26- 1	AG	DS	N	C
DHAi-0064QSZ1	572 542 1415	12- 6	AU	EZ	N	C
〃	572 542 1415	22- 3	AU	EZ	N	C
DHAi-0066QSZZ	572 542 1394	17- 2	AD	DJ	N	C
〃	572 542 1394	18- 22	AD	DJ	N	C
DUNTK0013QSZZ	572 685 1784	7- 5	BU	NU	N	E
DUNTW0014QS12	572 685 1790	13-901	BT	NE	N	E
DUNTW0014QS13	572 685 1791	13-901	BT	NE	N	E
DUNTW0014QS14	572 685 1792	13-901	BT	NE	N	E
DUNTW0014QSZZ	572 685 1788	13-901	BT	NE	N	E
DWiR-0466CSZZ	572 427 1070	20- 8	BG	HC		B
【G】						
GCAB-0003QSZA	572 107 1756	1- 1	AS	EZ	N	D
GCAB-0003QSZZ	572 107 1750	1- 1	AP	EQ	N	D
GCAB-0005QSZA	572 107 1757	1- 10	AN	EQ	N	D
GCAB-0005QSZZ	572 107 1751	1- 10	AN	EG	N	D
GCAB-0006QSZA	572 107 1752	1- 17	AN	EQ	N	D
GCAB-0006QSZZ	572 107 1753	1- 17	AN	EQ	N	D
GCAB-0007QSZA	572 107 1758	4- 1	AV	FG	N	D
GCAB-0007QSZZ	572 107 1754	4- 1	AU	EZ	N	D
GCAB-0021QSZA	572 107 1759	1- 18	AY	FQ	N	D
GCAB-0021QSZZ	572 107 1755	1- 18	AY	FQ	N	D
GCASP0001QSZZ	572 108 1264	21- 19	AY	FQ	N	D
GCŌVH0003QSZZ	572 110 1074	2- 1	AM	EG	N	D
GCŌVH0004QSZZ	572 110 1075	2- 2	AX	FG	N	D
GDAi-0001QSZZ	572 112 0145	11- 28	BF	GN	N	D
〃	572 112 0145	12- 17	BF	GN	N	D
GLEGG0064FCZZ	572 123 0072	12- 18	AC	DJ		C
【J】						
JBTN-0005QSZZ	572 170 0443	3- 4	AC	DJ	N	C
JBTN-0008QSZZ	572 170 0444	3- 6	AD	DJ	N	C
JBTN-0010QSZZ	572 170 0445	3- 3	AC	DJ	N	C
JKNBZ0001QSZZ	572 174 0326	10- 22	AE	DS	N	C
【L】						
LBNDJ0013FCZ1	572 201 0118	7- 4	AA	DJ		C
LBNDJ0013FCZZ	541 201 1001	17- 3	AA	DD		C
〃	541 201 1001	18- 21	AA	DD		C
LBNDJ0037FCZ1	572 201 0119	26- 2	AA	DJ		C
〃	572 201 0119	27- 2	AA	DJ		C
〃	572 201 0119	28- 2	AA	DJ		C
〃	572 201 0119	29- 2	AA	DJ		C
LBNDJ0043FCZZ	572 201 0022	10- 6	AA	DD		C
LBNDJ0067FCZZ	572 201 0136	13- 17	AC	DJ		C
LBŌSZ1031FCZZ	572 202 0270	11- 15	AC	DJ		C
LBŌSZ1508FCZZ	572 202 0378	18- 15	AG	DX		C

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			Ex.	Ja.		
LBŌSZ1509FCZ1	572 202 0403	18- 28	AD	DJ		C
LBŌSZ1510FCZZ	572 202 0373	18- 18	AF	DX		C
LBŌSZ1851FCZZ	572 202 0407	11- 13	AC	DJ		C
LBRC-0055FCZZ	572 203 0281	18- 10	AK	EB		C
LBSHZ0303FCZZ	572 204 0302	17- 11	AC	DJ		C
〃	572 204 0302	18- 9	AC	DJ		C
LFiX-0004QSZZ	572 211 0676	20- 15	AC	DJ	N	C
LFiX-0284FCZZ	572 211 0176	8- 11	AC	DD		C
LFRM-0002QSZZ	572 213 1850	10- 21	AX	FG	N	C
LFRM-0003QSZZ	572 213 1844	4- 9	AP	EQ	N	C
LFRM-0004QSZZ	572 213 1845	13- 7	AV	FG	N	C
LFRM-0005QSZZ	572 213 1846	13- 30	AQ	EQ	N	C
LFRM-0006QSZZ	572 213 1866	17- 13	AN	EG	N	C
LFRM-0007QSZZ	572 213 1867	17- 25	AK	EB	N	C
LFRM-0010QSZZ	572 213 1869	18- 35	AN	EG	N	C
LHLDW1226FCZZ	572 214 1450	21- 3	AB	DJ		C
〃	572 214 1450	23- 12	AB	DJ		C
LHLDZ0009QSAZ	572 214 1879	19- 1	AF	DS	N	C
LHLDZ0010QSZZ	572 214 1867	20- 14	AL	EB	N	C
LHLDZ0011QSZZ	572 214 1868	6- 4	AD	DJ	N	C
LHLDZ0013QSZZ	572 214 1869	8- 5	AD	DJ	N	C
LHLDZ0017QSZZ	572 214 1880	11- 30	AD	DJ	N	C
LHLDZ0018QSZZ	572 214 1872	10- 13	AE	DS	N	C
LHLDZ0019QSZZ	572 214 1873	8- 2	AN	EG	N	C
LHLDZ7021XCZZ	569 214 0006	6- 19	AD	DJ		C
LPiNS0301FCZZ	572 218 0426	10- 26	AD	DJ		C
LPLTM0016QSZZ	572 221 6943	11- 42	AE	DS	N	C
LPLTM0017QSZ1	572 221 6977	12- 9	AR	EQ	N	C
LPLTM0020QSZZ	572 221 6946	12- 21	AL	EB	N	C
LPLTM0022QSZZ	572 221 6947	13- 29	AG	DS	N	C
LPLTM0043QSZZ	572 221 6959	4- 5	AD	DJ	N	C
LPLTM0046QSZZ	572 221 6960	11- 25	AE	DJ	N	C
LPLTM0088QSZZ	572 221 6981	12- 2	AN	EQ	N	C
LPLTM0089QSZZ	572 221 6982	12- 23	AH	DX	N	C
LPLTM0097QSZZ	572 221 6978	6- 17	AE	DS	N	C
LPLTM0098QSZZ	572 221 6979	6- 18	AE	DJ	N	C
LPLTM2642FCGZ	572 221 5110	21- 4	AD	DS		C
LPLTM5106FCZZ	572 221 5879	21- 1	AR	EQ		C
LPLTM5111FCZZ	572 221 5882	5- 4	AC	DJ		C
LPLTP0009QSZZ	572 221 6962	13- 38	AS	EZ	N	C
LPLTP5107FCZZ	572 221 5910	21- 5	AH	DX		C
LPLTP5108FCZZ	572 221 5911	21- 13	AH	DX		C
LRALM0002QSZZ	572 223 0226	5- 15	AF	DS	N	C
LRALM0003QSZZ	572 223 0227	5- 14	AG	DS	N	C
LRALP0001QSZZ	572 223 0228	11- 34	AM	EG	N	C
LSŌU-0001QSZA	572 226 0577	1- 2	AX	FG	N	D
LSŌU-0001QSZZ	572 226 0572	1- 2	AW	FG	N	D
LSŌU-0002QSZZ	572 226 0573	18- 48	AL	EB	N	D
LSŌU-0003QSZZ	572 226 0574	18- 49	AK	DX	N	D
LSŌU-0008QSZA	572 226 0575	1- 4	AH	DX	N	D
LSŌU-0008QSZZ	572 226 0576	1- 4	AH	DX	N	D
LSTPP0116FCZZ	572 230 0157	13- 18	AA	DD		C
LSTPP0161FCZZ	572 230 0062	21- 18	AB	DD		C
LSTPP0300FCZZ	572 230 0378	18- 37	AB	DJ		C
LX-BZ0001QSZZ	572 970 1783	23- 16	AD	DJ		C
LX-BZ0004QSZZ	572 970 1917	5- 16	AB	DD	N	C
〃	572 970 1917	6- 6	AB	DD	N	C
LX-BZ0005QSZZ	572 970 1918	5- 7	AA	DD	N	C
LX-BZ0010QSZZ	572 970 1920	13- 8	AB	DD	N	C
LX-BZ0011QSZZ	572 970 1921	13- 42	AB	DD	N	C
LX-BZ0049FCZZ	572 970 0353	5- 29	AB	DD		C
LX-BZ0324FCZZ	572 970 0197	5- 27	AA	DD		C
LX-BZ0335FCZZ	572 970 0245	8- 8	AA	DD		C
LX-BZ0735FCZZ	572 970 1483	13- 36	AA	DD		C
LX-BZ3006SC0S	541 970 5148	10- 28	AA	DD		C
LX-WZ0023FCZZ	572 990 0217	11- 43	AA	DD		C
LX-WZ0119FCZZ	572 990 0002	5- 32	AA	DD	N	C
LX-WZ0313FCZZ	572 990 0227	13- 26	AA	DD		C
LX-WZ2028SCZZ	509 990 5003	21- 10	AA	DD		C
【M】						
MARMP0173FCZZ	572 240 0188	18- 4	AC	DJ		C
MARMP0204FCZ1	572 240 0283	18- 39	AF	DS		C
MARMP0205FCZZ	572 240 0252	18- 38	AF	DS		C
MHNG-0002QSZZ	572 246 0370	18- 40	AC	DJ	N	C
MLEVP0005QSZZ	572 248 1109	9- 5	AD	DJ	N	C
MLEVP0006QSZZ	572 248 1110	11- 2	AD	DJ	N	C
MLEVP0007QSZZ	572 248 1111	17- 17	AD	DJ	N	C
MLEVP0014QSZZ	572 248 1113	13- 28	AF	DS	N	C
MLEVP0015QSZZ	572 248 1114	13- 23	AF	DS	N	C
MSPRC0016QSZZ	572 258 3123	19- 7	AC	DJ	N	C
MSPRC0017QSZZ	572 258 3124	19- 5	AC	DJ	N	C

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			Ex.	Ja.		
MSPRC0018QSZZ	572 258 3125	19- 6	AC	DJ	N	C
MSPRC0021QSZZ	572 258 3126	9- 7	AB	DJ	N	C
MSPRC0022QSZ1	572 258 3195	9- 9	AC	DJ	N	C
MSPRC0023QSZZ	572 258 3128	14- 15	AB	DJ	N	C
MSPRC0024QSZZ	572 258 3129	10- 8	AA	DJ	N	C
MSPRC0026QSZZ	572 258 3130	11- 3	AB	DJ	N	C
MSPRC0027QSZZ	572 258 3131	20- 10	AC	DJ	N	C
MSPRC0028QSZZ	572 258 3132	20- 11	AC	DJ	N	C
MSPRC0030QSZZ	572 258 3133	4- 14	AC	DJ	N	C
MSPRC0031QSZZ	572 258 3134	4- 13	AB	DJ	N	C
MSPRC0032QSZZ	572 258 3135	4- 11	AB	DJ	N	C
MSPRC0036QSZZ	572 258 3136	17- 26	AB	DJ	N	C
〃	572 258 3136	18- 45	AB	DJ	N	C
MSPRC0037QSZZ	572 258 3137	11- 33	AB	DJ	N	C
MSPRC0038QSZZ	572 258 3138	17- 16	AC	DJ	N	C
MSPRC0039QSZZ	572 258 3139	17- 14	AB	DJ	N	C
MSPRC0040QSZZ	572 258 3140	5- 19	AB	DJ	N	C
MSPRC0047QSZZ	572 258 3165	11- 31	AA	DJ	N	C
MSPRC0048QSZZ	572 258 3166	18- 41	AB	DJ	N	C
MSPRC0049QSZZ	572 258 3167	18- 14	AC	DJ	N	C
MSPRC0051QSZZ	572 258 3143	20- 12	AA	DJ	N	C
MSPRC0053QSZZ	572 258 3144	14- 3	AB	DJ	N	C
MSPRC0055QSZZ	572 258 3145	13- 25	AC	DJ	N	C
MSPRC0077QSZZ	572 258 3146	11- 41	AB	DJ	N	C
MSPRC0080QSZZ	572 258 3196	17- 18	AB	DJ	N	C
MSPRC0108QSZZ	572 258 3168	21- 15	AC	DJ	N	C
MSPRC1145FCZZ	572 258 1272	21- 17	AA	DD		C
MSPRC1152FCZZ	572 258 1329	11- 16	AE	DJ		C
MSPRC1315FCZ1	572 258 2131	18- 16	AD	DJ		C
MSPRC1316FCZ1	572 258 2132	11- 11	AE	DS		C
〃	572 258 2132	18- 27	AE	DS		C
MSPRC1318FCZ1	572 258 2134	14- 23	AA	DJ		C
〃	572 258 2134	18- 30	AA	DJ		C
MSPRC1873FCZ1	572 258 2216	21- 16	AB	DJ		C
MSPRC2175FCZZ	572 258 2170	18- 33	AA	DJ		C
MSPRD0076QSZZ	572 258 3147	4- 6	AC	DJ	N	C
MSPRD0108QSZZ	572 258 3198	17- 31	AC	DJ	N	C
MSPRP0015QSZZ	572 258 3148	3- 7	AC	DJ	N	C
MSPRP0033QSZZ	572 258 3149	13- 6	AD	DJ	N	C
MSPRP0034QSZZ	572 258 3150	13- 14	AE	DJ	N	C
MSPRP0079QSZZ	572 258 3169	17- 29	AD	DJ	N	C
MSPRP0110QSZZ	572 258 3194	15- 6	AE	DJ	N	C
〃	572 258 3194	16- 6	AE	DJ	N	C
MSPRT0019QSZZ	572 258 3153	7- 7	AB	DJ	N	C
MSPRT0020QSZZ	572 258 3154	9- 2	AB	DJ	N	C
MSPRT0029QSZZ	572 258 3155	4- 3	AC	DJ	N	C
MSPRT0054QSZZ	572 258 3156	13- 37	AC	DJ	N	C
MSPRT0513FCZ1	572 258 2240	20- 7	AA	DJ		C
【N】						
NBLT-0005QSZZ	572 271 0581	10- 5	AH	DX	N	B
NBLTT0001QSZZ	572 271 0582	10- 20	AH	DX	N	B
NBLTT0002QSZZ	572 271 0583	5- 26	AH	DX	N	B
NBRGC0100FCZ1	572 272 0465	11- 8	AC	DJ		C
NBRGC0133FCZ1	572 272 0470	5- 31	AC	DJ		C
NBRGC0387FCZ1	572 272 0471	5- 23	AC	DJ		C
NBRGC0579FCZZ	572 272 0557	10- 2	AE	DJ		C
NBRGP0260FCZ1	572 272 0433	13- 24	AD	DS		C
NBRGP0562FCZZ	572 272 0547	11- 19	AD	DJ		C
NBRGP0567FCZZ	572 272 0558	13- 20	AG	DX		C
NCPL-0002QSZZ	572 274 0043	10- 7	AC	DJ	N	C
NFANP0001QSZZ	572 277 0081	10- 12	AY	FQ	N	B
NGERH0007QSZZ	572 281 1748	14- 11	AH	DX	N	C
NGERH0008QSZ1	572 281 1749	14- 16	AL	EB	N	C
NGERH0009QSZZ	572 281 1750	14- 7	AD	DJ	N	C
NGERH0010QSZZ	572 281 1751	14- 6	AD	DJ	N	C
NGERH0012QSZZ	572 281 1753	14- 18	AE	DS	N	C
NGERH0013QSZZ	572 281 1754	14- 19	AG	DX	N	C
NGERH0014QSZZ	572 281 1755	14- 8	AD	DJ	N	C
NGERH0015QSZZ	572 281 1756	14- 10	AD	DJ	N	C
NGERH0016QSZZ	572 281 1757	14- 12	AD	DJ	N	C
NGERH0017QSZZ	572 281 1758	14- 17	AD	DJ	N	C
NGERH0018QSZZ	572 281 1759	14- 14	AC	DJ	N	C
NGERH0019QSZZ	572 281 1760	14- 13	AD	DJ	N	C
NGERH0020QSZZ	572 281 1761	11- 9	AG	DX	N	C
NGERH0021QSZZ	572 281 1762	17- 27	AD	DJ	N	C
〃	572 281 1762	18- 46	AD	DJ	N	C
NGERH0022QSZZ	572 281 1763	11- 21	AC	DJ	N	C
NGERH0025QSZZ	572 281 1764	11- 23	AD	DJ	N	C
NGERH0026QSZZ	572 281 1765	11- 22	AD	DJ	N	C
NGERH0027QSZZ	572 281 1766	5- 18	AH	DX	N	C
NGERH0050QSZZ	572 281 1777	14- 4	AD	DJ	N	C

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NGERH0193FCZZ	572 281 0318	21- 11	AB	DD		C
NGERH0540FCZ1	572 281 1277	13- 19	AE	DJ		C
NGERH0972FCZZ	572 281 1108	17- 6	AB	DJ		C
〃	572 281 1108	18- 19	AB	DJ		C
NGERH0990FCZZ	572 281 1125	17- 9	AB	DJ		C
〃	572 281 1125	18- 7	AB	DJ		C
NGERH0991FCZZ	572 281 1126	18- 20	AC	DJ		C
NGERH0992FCZZ	572 281 1127	18- 3	AB	DJ		C
NGERH1132FCZZ	572 281 1349	11- 18	AH	DX		C
NPLYZ0001QSZZ	572 284 0696	10- 4	AE	DJ	N	C
NPLYZ0002QSZZ	572 284 0697	14- 5	AC	DJ	N	C
NPLYZ0003QSZZ	572 284 0698	5- 28	AM	EG	N	C
NPLYZ0004QSZZ	572 284 0699	5- 25	AG	DX	N	C
NPLYZ0005QSZZ	572 284 0700	5- 9	AG	DX	N	C
NPLYZ0006QSZZ	572 284 0701	5- 10	AD	DJ	N	C
NPLYZ0007QSZZ	572 284 0702	8- 4	AG	DX	N	C
NRŌLi0014QSZZ	572 287 1853	13- 21	AZ	FQ	N	C
NRŌLP0007QSZ1	572 287 1854	10- 1	AQ	EQ	N	C
NRŌLP0008QSZZ	572 287 1832	9- 1	AD	DJ	N	C
NRŌLP0012QSZ1	572 287 1855	10- 3	AS	EQ	N	C
NRŌLP1008FCZZ	572 287 1280	18- 5	AK	EB		C
NRŌLP1122FCZZ	572 287 1526	4- 17	AF	DS		C
〃	572 287 1526	9- 8	AF	DS		C
〃	572 287 1526	17- 24	AF	DS		C
NRŌLR0013QSZZ	572 287 1834	11- 7	AQ	EQ	N	C
NRŌLR0016QSZZ	572 287 1835	17- 12	AT	EZ	N	C
NRŌLR0028QSZZ	572 287 1836	13- 27	AZ	FQ	N	C
NRŌLR0922FCZZ	572 287 1120	18- 1	AR	EZ		C
NSFTZ0006QSZZ	572 290 2423	4- 15	AG	DX	N	C
NSFTZ0007QSZZ	572 290 2424	17- 23	AG	DX	N	C
NSFTZ0008QSZZ	572 290 2425	5- 30	AQ	EQ	N	C
NSFTZ2311FCZZ	572 290 2048	18- 8	AU	EZ		C
【P】						
PBRSR0002QSZZ	572 310 0305	6- 13	AK	DX	N	B
PBRSR0004QSZZ	572 310 0306	13- 4	AE	DS	N	B
PCASZ0002QSZZ	572 315 0190	20- 16	AL	EB	N	C
PCASZ0003QSZZ	572 315 0191	6- 2	AK	EB	N	C
PCŌVP0007QSZZ	572 323 1886	11- 38	AF	DS	N	C
PCŌVP0008QSZA	572 323 1867	12- 20	AE	DS	N	C
PCŌVP0008QSZZ	572 323 1868	12- 20	AE	DJ	N	C
PCŌVP0009QSZA	572 323 1869	12- 19	AF	DS	N	C
PCŌVP0009QSZZ	572 323 1870	12- 19	AE	DS	N	C
PCŌVP0010QSZZ	572 323 1871	13- 5	AG	DS	N	C
PCŌVP0011QSZZ	572 323 1872	13- 15	AK	DX	N	C
PCŌVP0012QSZZ	572 323 1873	15- 3	AK	DX	N	C
PCŌVP0013QSZZ	572 323 1874	11- 32	AD	DJ	N	C
PCŌVP0019QSZ1	572 323 1889	18- 44	AK	DX	N	C
PCŌVP0019QSZZ	572 323 1888	18- 44	AK	DX	N	C
PCŌVP0023QSZZ	572 323 1884	16- 3	AK	DX	N	C
PCŌVP0028QSZZ	572 323 1880	7- 2	AE	DJ	N	C
PCŌVP0035QSZA	572 323 1905	1- 26	AL	EB	N	D
PCŌVP0035QSZZ	572 323 1890	1- 26	AL	EB	N	D
PCUSG0190FCZ1	572 326 0236	6- 10	AB	DJ		C
PCUSS0009QSZZ	572 326 0377	8- 10	AA	DJ	N	C
PCUSS0201FCZZ	572 326 0103	8- 14	AA	DD		C
PFiLZ0001QS12	572 337 0353	3- 1	AS	EQ	N	B
PFiLZ0001QS18	572 337 0354	3- 1	AS	EQ	N	B
PFiLZ0001QSZ2	572 337 0350	3- 1	AS	EQ	N	B
PFiLZ0001QSZ5	572 337 0351	3- 1	AS	EQ	N	B
PFiLZ0001QSZ6	572 337 0352	3- 1	AS	EQ	N	B
PFiLZ0002QSZZ	572 337 0345	1- 23	AL	EB	N	B
PGiDH0025QSZ1	572 345 3162	20- 4	AG	DX	N	C
PGiDH0026QSZZ	572 345 3142	13- 34	AE	DS	N	C
PGiDM0006QSZZ	572 345 3143	9- 6	AN	EG	N	C
PGiDM0007QSZZ	572 345 3144	6- 15	AP	EQ	N	C
PGiDM0008QSZZ	572 345 3145	4- 4	AD	DJ	N	C
PGiDM0009QSZZ	572 345 3146	10- 25	AG	DS	N	C
PGiDM0010QSZ1	572 345 3163	11- 5	AG	DX	N	C
PGiDM0011QSZZ	572 345 3148	20- 2	AE	DS	N	C
PGiDM0012QSZZ	572 345 3165	17- 22	AF	DS	N	C
PGiDM0013QSZZ	572 345 3166	17- 21	AF	DS	N	C
PGiDM0014QSZZ	572 345 3151	17- 20	AF	DS	N	C
〃	572 345 3151	18- 12	AF	DS	N	C
PGiDM0017QSZZ	572 345 3167	18- 43	AE	DJ	N	C
PGiDM0018QSZZ	572 345 3168	18- 42	AE	DJ	N	C
PGiDM0023QSZZ	572 345 3152	13- 1	AP	EQ	N	C
PGLSP0001QSZZ	572 348 0130	1- 16	AX	FG	N	B
PGSK-1004DCZZ	593 350 0001	6- 23	AF	DJ		C
PMiR-0002QSZZ	572 374 0195	8- 12	AN	EQ	N	B
PMLT-0024QSZZ	572 375 0880	1- 22	AC	DJ	N	C
PPiPP0003QSZZ	572 395 0205	11- 17	AD	DJ	N	C

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PPiPP0109FCZZ	572 395 0039	11- 10	AB	DD		C
〃	572 395 0039	18- 17	AB	DD		C
PPiPP0175FCZZ	572 395 0169	18- 26	AC	DJ		C
PSHEP0019QSZZ	572 403 4257	20- 3	AC	DJ	N	C
PSHEP0020QSZZ	572 403 4258	20- 13	AB	DJ	N	C
PSHEP0021QSZZ	572 403 4259	20- 6	AA	DJ	N	C
PSHEP0023QSZZ	572 403 4260	13- 35	AF	DS	N	C
PSHEP0042QSZZ	572 403 4263	6- 11	AC	DJ	N	C
PSHEP0047QSZZ	572 403 4265	13- 40	AC	DJ	N	C
PSHEP0061QSZZ	572 403 4266	21- 8	AA	DJ	N	C
PSHEZ0017QSZZ	572 403 4267	9- 3	AC	DJ	N	C
PSHEZ0018QSZZ	572 403 4268	20- 1	AF	DS	N	C
PSHEZ0026QSZZ	572 403 4269	1- 14	AE	DJ	N	C
PSHEZ0027QSZZ	572 403 4270	1- 15	AC	DJ	N	C
PSHEZ0034QSZZ	572 403 4276	2- 3	AV	FG	N	C
PSHEZ0045QSZZ	572 403 4277	13- 33	AB	DJ	N	C
PSHEZ0048QSZZ	572 403 4278	8- 1	AE	DJ	N	C
PSHEZ0066QSZZ	572 403 4318	6- 20	AE	DS	N	C
PSHEZ0073QSZZ	572 403 4319	7- 6	AC	DJ	N	C
PSHEZ0074QSZZ	572 403 4322	6- 24	AE	DS	N	C
PSHEZ0079QSZZ	572 403 4323	1- 25	AD	DJ	N	C
PSHEZ0080QSZZ	572 403 4324	9- 11	AE	DJ	N	C
PSHEZ2026FCZ1	572 403 1992	11- 29	AB	DD		C
PSHEZ2174FCZZ	572 403 2095	11- 36	AB	DD		C
PSHEZ4142FCZZ	572 403 3653	21- 2	AC	DJ		C
PSPAZ0005QSZZ	572 413 0676	25- 1	AC	DJ	N	C
PTME-0002QSZZ	572 420 0298	14- 24	AD	DJ	N	B
PTME-0003QSZZ	572 420 0299	14- 26	AD	DJ	N	B
PTME-0004QSZZ	572 420 0300	4- 2	AG	DX	N	C
PTME-0178FCZZ	572 420 0181	18- 32	AC	DD		C
PTME-0179FCZZ	572 420 0182	18- 31	AC	DD		C
PTME-0255FCZZ	572 420 0271	21- 6	AG	DS		C
PTME-0256FCZZ	572 420 0272	21- 14	AG	DS		C
PWiR-0001QSZZ	572 427 1630	13- 3	AF	DS	N	C
PWiR-0003QSZZ	572 427 1631	5- 1	AR	EQ	N	C
【Q】						
QACCB7620QCN1	572 500 0018	23- 3	AX	FX		B
QACCD7618QCZZ	578 500 0012	23- 3	AQ	EQ		B
QACCJ9610QCZZ	572 500 0016	23- 3	AR	EZ		B
QACCL7621QCZZ	578 500 0010	23- 3	AX	FQ		B
QACCV6621QCN1	572 500 0059	23- 3	AU	FQ		B
QCNCM0861FCZZ	572 510 0777	25- 2	AB	DJ		C
QCNCM0923FC14	572 510 0937	24- 1	AE	DJ		C
QCNCM0923FC18	572 510 0877	24- 2	AF	DS		C
QCNCM0923FC24	572 510 0870	24- 3	AF	DS		C
QCNCM1005MCZZ	589 510 0004	24- 4	AB	DD		C
QCNCM1069AC0D	569 510 0002	24- 5	AC	DD		C
QCNCM1119LC0E	572 510 1029	24- 6	AC	DJ	N	C
QCNCM2401SC0C	595 510 0762	24- 7	AB	DJ		C
QCNCM2401SC0D	595 510 0090	24- 8	AC	DJ		C
QCNCM2401SC0E	578 510 0195	24- 9	AC	DJ		C
QCNCM2401SC0F	595 510 0782	24- 10	AB	DJ		C
QCNCM7014SC0C	595 510 0338	24- 11	AA	DD		C
QCNCM7014SC0D	595 510 0345	24- 12	AB	DD		C
QCNCM7014SC0E	595 510 0744	24- 13	AB	DJ		C
QCNCP0340QCZZ	572 510 0921	24- 14	AC	DJ		C
QCNCW0012QSZZ	572 510 1030	24- 15	AH	DX	N	C
QCNCW0015QSZZ	572 510 1031	24- 16	AE	DJ	N	C
QCNCW1124LC0D	572 510 1032	24- 17	AB	DJ	N	C
QCNCW1124LC0H	594 510 0507	24- 18	AC	DJ		C
QCNCW1124LC1H	572 510 1033	24- 19	AD	DJ	N	C
QCNCW1124LC2F	594 510 0436	24- 20	AD	DJ		C
QCNCW1132LC1H	572 510 1034	25- 3	AD	DJ	N	C
QCNCW1135LC3B	572 510 1035	24- 21	AF	DS	N	C
QFS-A0052PAZZ	572 515 0479	30-123	AE	DJ	N	A
QFS-A2700QCZZ	571 515 0003	30-122	AD	DJ		A
QFS-B0030FCZZ	572 515 0062	30-122	AH	DS		A
QFS-C0056PAZZ	572 515 0480	30-123	AE	DS	N	A
QFS-C1500QCZZ	572 515 0120	30-122	AF	DS		A
QFS-F0030PAZZ	572 515 0482	30-123	AE	DJ	N	A
QPLGJ2326YAZZ	541 524 5004	30- 1	AB	DD		C
QPLGZ0430PAZZ	572 524 0118	30- 2	AE	DJ	N	C
QPLGZ0557PAZZ	572 524 0119	30- 3	AD	DJ	N	C
QPLGZ0558PAZZ	572 524 0120	30- 4	AE	DS	N	C
QPLGZ0559PAZZ	572 524 0121	30- 5	AG	DS	N	C
QPLGZ0560PAZZ	572 524 0122	30- 4	AF	DS	N	C
QSLP-0005QSZZ	572 537 0040	10- 16	AE	DJ	N	C
QSLP-0006QSZZ	572 537 0041	10- 14	AE	DJ	N	C
QSLP-0007QSZZ	572 537 0042	20- 9	AC	DJ	N	C
QSŌCZ0002GCZZ	578 527 0017	24- 22	AD	DJ		C
QSŌCZ6408ACZZ	578 527 0004	24- 23	AB	DD		C

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			Ex.	Ja.		
QSW-B0003QSZZ	572 530 0667	11- 26	AF	DS	N	B
QSW-P0005QSZZ	572 530 0672	25- 4	AC	DJ	N	B
【R】						
RATTT0004PAZZ	572 602 0003	30- 6	AP	EQ	N	B
RC-EZ0382PAZZ	572 590 0038	30- 7	AR	EQ	N	C
RC-EZ0398PAZZ	572 591 0074	30- 7	AV	FG	N	C
RC-EZ0425PAZZ	572 591 0070	30- 7	AR	EQ	N	C
RC-FZ137DPAZZ	572 590 0039	30- 8	AE	DJ	N	C
RC-FZ138DPAZZ	572 596 0378	30- 9	AE	DS	N	C
RC-FZ140DPAZZ	572 590 0040	30- 10	AG	DX	N	C
RC-K1E104HCZT	579 593 0008	24- 24	AA	DD		C
RC-KZ4012PAZZ	572 591 0071	30- 11	AD	DJ	N	C
RC-KZ4013PAZZ	572 590 0041	30- 12	AC	DD	N	C
RC-KZ4014PAZZ	572 591 0072	30- 13	AC	DD	N	C
RC-KZ4015PAZZ	572 590 0042	30- 14	AC	DD	N	C
RC-KZ4018PAZZ	572 591 0073	30- 15	AF	DS	N	C
RC-QZ0218PAZZ	572 596 0382	30- 16	AC	DD	N	C
RC-QZ0221PAZZ	572 590 0047	30- 17	AD	DJ	N	C
RC-QZ0222PAZZ	572 596 0383	30- 17	AD	DJ	N	C
RC-QZ0230PAZZ	572 590 0048	30- 16	AE	DJ	N	C
RC-QZ0232PAZZ	572 596 0384	30- 18	AE	DS	N	C
RC-QZA102PARK	572 590 0043	30- 19	AC	DD	N	C
RC-QZA103PARK	572 596 0379	30- 20	AC	DD	N	C
RC-QZA104PARK	572 590 0044	30- 21	AC	DD	N	C
RC-QZA223PARK	572 596 0380	30- 22	AC	DD	N	C
RC-QZA273PARK	572 590 0045	30- 23	AC	DD	N	C
RC-QZA472PARK	572 596 0381	30- 24	AC	DD	N	C
RC-QZA473PARK	572 590 0046	30- 25	AC	DD	N	C
RCiLZ0003QSZZ	572 614 0252	24- 25	AC	DJ	N	C
RCiLZ0004QSZZ	572 614 0253	24- 26	AE	DJ	N	C
RCiLZ1032CCZZ	507 614 5006	24- 27	AD	DJ		C
RCŌRF0002QSZZ	572 615 0066	6- 22	AE	DS	N	C
〃	572 615 0066	9- 12	AE	DS	N	C
RCŌRF4092PAZZ	572 615 0065	30- 26	AC	DJ	N	C
RCRSZ0001QSZZ	572 616 0100	24- 28	AG	DS	N	B
RCRSZ0002QSZZ	572 616 0097	24- 29	AP	EQ	N	B
RCRSZ0003QSZZ	572 616 0098	24- 30	AP	EQ	N	B
RDTCT0128FCZZ	572 618 0116	13- 9	AR	EQ		B
RH-DZ0016FCZZ	572 570 0001	24- 31	AB	DD		B
RH-iX1783PAZZ	572 573 1780	30- 27	AF	DS	N	B
RH-iX1950PAZZ	578 573 0894	30- 28	AF	DS		B
RH-iX2251PAZZ	572 573 1781	30- 29	AR	EQ	N	B
RH-iX2257PAZZ	572 573 1782	30- 30	AK	EB	N	B
RH-iX2258PAZZ	572 573 1783	30- 31	AH	DX	N	B
RH-PX0285PAZZ	578 574 0040	30- 32	AF	DS		B
RH-PX0296PAZZ	572 573 1784	30- 32	AF	DS	N	B
RH-PX0307PAZZ	572 574 0315	30- 33	AK	DX	N	B
RH-PX0308PAZZ	572 573 1785	30- 33	AM	EG	N	B
RLMPU0009QSZZ	572 626 0578	13- 22	BA	FX	N	B
RLMPU0010QSZZ	572 626 0574	13- 22	BA	FX	N	B
RLMPU0011QSZZ	572 626 0575	13- 22	BA	FX	N	B
RMŌTD0009QSZZ	572 630 0954	10- 9	AU	EZ	N	B
RMŌTP0010QSZZ	572 630 0955	14- 2	BN	HZ	N	B
RMŌTP0011QSZZ	572 630 0956	5- 20	BA	FX	N	B
RMPTC6203QCJB	572 631 0263	24- 32	AC	DD	N	B
RMPTC8203QCJB	572 631 0261	24- 33	AC	DD	N	B
RMPTW4203QCJJ	572 631 0262	24- 34	AA	DD	N	B
RMPTW4470QCJJ	521 631 0024	24- 35	AB	DD		B
RPLU-0001QSZZ	572 647 0322	14- 22	AN	EG	N	B
RPLU-0002QSZZ	572 647 0323	14- 25	AN	EG	N	B
RPLU-0003QSZZ	572 647 0325	18- 29	AN	EG	N	B
RR-HZ4022PAZZ	572 581 1859	30- 34	AD	DJ	N	C
RR-HZ4023PAZZ	572 580 1134	30- 35	AD	DJ	N	C
RR-HZ4024PAZZ	572 581 1860	30- 36	AD	DJ	N	C
RR-SN1201PA6F	572 581 1864	30- 37	AB	DD	N	C
RR-SN3900PA6F	572 581 1861	30- 38	AB	DD	N	C
RR-SZ0034PAZZ	578 580 0042	30- 39	AC	DD		C
RR-SZ0048PAZZ	572 580 1135	30- 40	AC	DD	N	C
RR-SZ0057PAZZ	572 581 1862	30- 41	AC	DD	N	C
RR-WZ0028PAZZ	595 580 0105	30- 42	AF	DX		C
RR-XZ0051PAZZ	572 580 1136	30- 43	AC	DD	N	C
RR-XZ0078PAZZ	578 580 0044	30- 44	AC	DD		C
RR-XZ4002PAZZ	572 581 1863	30- 45	AC	DD	N	C
RR-XZ4003PAZZ	572 580 1137	30- 46	AC	DD	N	C
RRLYZ0100PAZZ	572 637 0150	30- 47	AN	EG	N	B
RTRNF5025PAZZ	572 651 0001	30- 48	BA	FX	N	B
RTRNF5026PAZZ	572 651 0002	30- 49	BA	FX	N	B
RTRNZ0202PACN	572 660 0412	30- 50	AL	EB	N	B
RTRNZ0202PANT	572 660 0413	30- 50	AL	EB	N	B
RTRNZ0499PACT	572 660 0414	30- 50	AL	EB	N	B
RTRNZ0609PACD	572 660 0415	30- 51	AW	FG	N	B

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			Ex.	Ja.		
RTRNZ0609PANT	572 660 0416	30- 51	AW	FG	N	B
RTRNZ0610PACD	572 660 0417	30- 51	AW	FG	N	B
RTRNZ0617PANT	572 660 0418	30- 52	AR	EQ	N	B
RTRNZ0618PANT	572 660 0419	30- 53	AP	EQ	N	B
RVR-M0384PAZZ	572 670 0177	30- 54	AD	DJ	N	B
RVR-M0390PAZZ	572 670 0178	30- 55	AD	DJ	N	B
RVR-M0391PAZZ	572 670 0179	30- 56	AD	DJ	N	B
RVR-M0392PAZZ	572 670 0180	30- 57	AD	DJ	N	B
RVR-M0395PAZZ	572 670 0181	30- 58	AD	DJ	N	B
【S】						
SPAKA0047QSZZ	572 902 1412	23- 9	AX	FG	N	D
SPAKA0048QSZZ	572 902 1426	23- 2	AP	EQ	N	D
SPAKA0049QSZZ	572 902 1427	23- 1	AP	EQ	N	D
SPAKA0050QSZZ	572 902 1413	23- 11	AE	DJ	N	D
SPAKA0051QSZZ	572 902 1414	23- 14	AC	DJ	N	D
SPAKA0068QSZZ	572 902 1428	23-104	AD	DJ	N	D
SPAKC0052QS11	572 901 1410	23- 10	AY	FQ	N	D
SPAKC0052QS16	572 901 1411	23- 10	AY	FQ	N	D
SPAKC0052QS17	572 901 1423	23- 10	AY	FQ	N	D
SPAKC0052QS22	572 901 1412	23- 10	AY	FQ	N	D
SPAKC0052QS23	572 901 1413	23- 10	AY	FQ	N	D
SPAKC0052QS28	572 901 1414	23- 10	AY	FQ	N	D
SPAKC0052QS29	572 901 1415	23- 10	AY	FQ	N	D
SPAKC0052QS34	572 901 1416	23- 10	AY	FQ	N	D
SPAKC0052QS35	572 901 1417	23- 10	AY	FQ	N	D
SPAKC0052QS40	572 901 1418	23- 10	AY	FQ	N	D
SPAKC0052QS41	572 901 1419	23- 10	AY	FQ	N	D
SPAKC0052QS46	572 901 1420	23- 10	AY	FQ	N	D
SPAKC0052QS48	572 901 1421	23- 10	AY	FQ	N	D
SPAKC0052QSZZ	572 901 1408	23- 10	AY	FQ	N	D
SSAKA2347QCZZ	578 906 0006	23- 8	AB	DD		D
SSAKA5003CCZZ	500 906 0006	23- 5	AA	DD		D
【T】						
TCADS0764FCZ1	572 913 0620	23-102	AD	DJ		D
TCADZ0014QSZZ	572 913 0858	23-101	AE	DJ	N	D
TCAUA0770FCZZ	572 914 0035	1- 19	AB	DD		C
TCAUH0007QSZZ	572 914 0676	15- 7	AD	DJ	N	C
〃	572 914 0676	16- 7	AD	DJ	N	C
TCAUH0819FCZZ	572 914 0575	4- 19	AA	DD		C
TCAUH0933FCZZ	572 914 0129	6- 16	AB	DD		C
TCAUH0991FCZZ	572 914 0620	13- 32	AE	DS		C
TCAUH0992FCZZ	572 914 0621	13- 32	AE	DS		C
TCAUH1013FCZZ	572 914 0642	13- 32	AD	DJ		C
TGANE0009QSZZ	572 915 0043	23-102	AL	EB	N	D
TGANJ0005QSZZ	572 915 0041	23-102	AL	EB	N	D
TGANJ0006QSZZ	572 915 0042	23-102	AL	EB	N	D
TiNSE0067QSZZ	572 916 1522	23- 7	AM	EG	N	D
TiNSE0069QSZZ	572 916 1523	23- 7	AX	FG	N	D
TiNSE0078QSZZ	572 916 1524	23- 7	AQ	EQ	N	D
TiNSF0071QSZZ	572 916 1525	23- 7	AX	FG	N	D
TiNSJ0065QSZZ	572 916 1528	23- 7	AU	ZZ	N	D
TLABH0055QSZZ	572 917 3351	1- 24	AE	DS	N	C
TLABH0056QSZZ	572 917 3352	1- 11	AG	DX	N	C
TLABH0264GCZZ	578 917 0363	1- 21	AC	DJ		C
TLABH3591FCZZ	572 917 2721	23-103	AB	DJ		C
TLABM0067QSZZ	572 917 3354	1- 27	AD	DJ	N	C
TLABZ0058QSZZ	572 917 3341	1- 20	AD	DJ	N	C
TLABZ3405FCZZ	572 917 2809	24- 36	AB	DJ		C
TLABZ3568FCZZ	572 917 2729	21- 12	AB	DJ		C
TTAG-0002QSZZ	572 921 0001	23- 13	AB	DJ	N	C
TTAG-0003QSZZ	572 921 0002	23- 15	AC	DJ	N	C
【U】						
UBAGF0039FCZZ	572 931 0017	23- 6	AG	DS		D
UBNDA0001FCZZ	595 933 0001	23- 4	AA	DD		C
【V】						
VCCCTV1HH101J	500 591 5023	24- 37	AA	DD		C
VCCCTV1HH120J	500 593 0026	24- 38	AA	DD		C
VCCCTV1HH180J	595 593 0051	24- 39	AA	DD		C
VCCCTV1HH201J	500 591 5042	25- 5	AA	DD		C
VCCCTV1HH330J	578 593 0008	24- 40	AA	DD		C
VCCCTV1HH470J	500 591 5043	24- 41	AA	DD		C
VCEAFU1EM227M	572 594 0787	30- 59	AC	DD	N	C
VCEAFU1HM105M	578 594 0103	30- 60	AC	DD		C
VCEAFU1HM475M	572 594 0788	30- 61	AC	DD	N	C
VCEAFU1VM336M	572 594 0789	30- 62	AC	DD	N	C
VCEAFU1VM476M	572 594 0790	30- 63	AD	DD	N	C
VCEAFV1AM228M	572 594 0791	30- 64	AF	DS	N	C
VCEAFV1VM108M	572 594 0792	30- 65	AF	DS	N	C
VCEAGA1VW106M	572 594 0093	24- 49	AA	DD		C
VCEAGA1VW226M	595 594 0344	24- 50	AC	DD		C
VCEAGU1CW106M	571 594 0095	24- 42	AA	DD		C

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			Ex.	Ja.		
VCEAGU1CW107M	541 591 5286	24- 43	AB	DD		C
VCEAGU1CW226M	541 591 5060	24- 44	AA	DD		C
VCEAGU1CW476M	541 591 5063	24- 45	AB	DD		C
VCEAGU1EW106M	572 594 0065	24- 46	AA	DD		C
VCEAGU1EW476M	571 594 0230	24- 47	AB	DD		C
VCEAGU1HW474M	571 594 0236	24- 48	AA	DD		C
VCEAGU1VW476M	579 594 0046	24- 51	AB	DD		C
VCEAJU1CW476M	596 594 0062	25- 6	AB	DD		C
VCKYPU1HB102K	541 595 1004	26- 3	AA	DD		C
〃	541 595 1004	27- 3	AA	DD		C
〃	541 595 1004	28- 3	AA	DD		C
〃	541 595 1004	29- 3	AA	DD		C
VCKYTV1EB104K	595 593 0031	24- 52	AA	DD		C
〃	595 593 0031	25- 7	AA	DD		C
VCKYTV1HB102K	588 593 0008	24- 53	AA	DD		C
〃	588 593 0008	25- 8	AA	DD		C
VCKYTV1HB222K	596 593 0080	24- 54	AA	DD		C
VCKYTV1HB223K	500 595 0082	24- 55	AA	DD		C
〃	500 595 0082	25- 9	AA	DD		C
VCKYTV1HB471K	500 595 0077	24- 57	AA	DD		C
VCKYTW1HB104K	572 593 0295	24- 56	AC	DD		C
VHD1N4003//-1	572 570 0477	30- 66	AC	DJ	N	B
VHD1N4005//-1	572 570 0478	30- 67	AC	DJ	N	B
VHD1N4005E/-1	572 570 0480	24- 59	AB	DJ	N	B
VHD1SS244//-1	572 570 0479	30- 68	AC	DJ	N	B
VHD1SS270A/-1	578 570 0049	30- 69	AA	DD		B
VHDD3SBA60/-1	572 570 0410	30- 70	AG	DX		B
VHDD5SBA60/-1	595 570 0289	30- 70	AH	DX		B
VHDDSK10C//-1	595 570 0285	30- 71	AB	DJ		B
VHDDSS133//-1	500 570 5006	24- 58	AA	DD		B
〃	500 570 5006	25- 10	AA	DD		B
VHDERA2206/-1	578 570 0053	30- 72	AD	DJ		B
VHDERA2208/-1	578 570 0054	30- 72	AD	DJ		B
VHDERA9202/-1	572 570 0474	30- 73	AE	DJ	N	B
VHDESJA5210-1	572 570 0475	30- 74	AE	DS	N	B
VHDYG801C04-1	572 570 0476	30- 75	AG	DX	N	B
VHDYG901C2/-1	578 570 0058	30- 76	AG	DX		B
VHEHZS5A1//-1	572 571 0225	24- 60	AC	DJ	N	B
VHERD16ESB1-1	572 571 0212	30- 77	AC	DJ	N	B
〃	572 571 0212	30- 81	AC	DJ	N	B
VHERD20ESB2-1	572 571 0213	30- 78	AC	DJ	N	B
VHERD3.0ESB11	572 571 0214	30- 79	AC	DJ	N	B
VHERD30ESB1-1	572 571 0215	30- 80	AC	DJ	N	B
VHERD39ESB1-1	572 571 0216	30- 77	AC	DJ	N	B
〃	572 571 0216	30- 81	AC	DJ	N	B
VHERD4.7ESB11	572 571 0217	30- 82	AC	DJ	N	B
VHERD5.1ESB21	572 571 0218	30- 83	AC	DJ	N	B
VHERD5.6ESB21	572 571 0219	30- 84	AC	DJ	N	B
VHERD5.6ESB31	572 571 0220	30- 85	AC	DJ	N	B
VHERD6.8ESB11	572 571 0221	30- 86	AC	DJ	N	B
VHH4D18////-1	572 572 0008	30- 87	AK	EB	N	B
VHH8D13////-1	541 572 5004	30- 87	AK	DS	N	B
VHi27C1024-80	572 573 1772	24- 76	AW	FG	N	B
VHi341256SJ12	578 573 0970	24- 77	AN	EG	N	B
VHi74VHC08/-1	572 573 1476	24- 78	AE	DS		B
VHiH8S/2350FP	572 573 1768	24- 62	AY	FQ	N	B
VHiHG73C025FD	572 573 1767	24- 61	BE	GN	N	B
VHiLC7935//-1	572 573 0454	25- 11	AN	EQ		B
VHiLM358PS/-S	572 573 0399	24- 63	AC	DJ		B
VHiM24C02WBN6	572 573 1769	24- 64	AG	DS	N	B
VHiM51953BL-1	588 573 0032	24- 65	AF	DS		B
VHiM66236FP-1	572 573 1791	24- 66	AT	EZ	N	B
VHiNJM2903M/-	572 573 0025	24- 67	AD	DJ		B
VHiNJM3414M-1	571 573 1448	24- 68	AF	DX		B
VHiSLA7027MU/	578 573 0883	24- 69	AQ	EQ		B
VHiSN74LS07NS	596 573 0065	24- 70	AF	DS		B
VHiTA7291S/-1	572 573 0188	24- 71	AF	DS		B
VHiTC74HC14FN	595 573 1165	24- 72	AH	DX		B
VHiTC74HC151F	572 573 1792	24- 73	AG	DS	N	B
〃	572 573 1792	25- 12	AG	DS	N	B
VHiTD62503F/-	572 573 0907	24- 74	AG	DX		B
VHiULN2003AN1	572 573 0829	24- 75	AE	DJ		B
VHPGP1S53V/-1	578 574 0031	26- 4	AE	DS		B
〃	578 574 0031	27- 4	AE	DS		B
〃	578 574 0031	28- 4	AE	DS		B
〃	578 574 0031	29- 4	AE	DS		B
VHPLTC3650G01	572 574 0314	25- 13	AQ	EQ	N	B
VHPMPG3864K-J	572 574 0298	25- 14	AC	DJ		B
VHPMVR3864K-J	572 574 0299	25- 15	AC	DJ		B
VHSTF321S//-1	578 575 0020	30- 88	AG	DX		B
VHSTM1641P/-F	572 575 0153	30- 89	AT	EZ	N	B

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			Ex.	Ja.		
VHSTM1661P/-F	572 575 0154	30- 89	AT	EZ	N	B
VHVC271D10A-1	578 577 0016	30- 90	AD	DJ		B
VHVC471D10A-1	578 577 0017	30- 90	AE	DJ		B
VHViCPN38//-1	585 577 0022	24- 79	AF	DS		B
VRD-HT2EY121J	507 581 5011	24- 80	AA	DD		C
VRD-HT2EY151J	541 581 5470	24- 81	AA	DD		C
VRD-HT2EY221J	507 581 5014	24- 82	AA	DD		C
VRD-HT2EY241J	593 581 0088	24- 83	AA	DD		C
VRD-HT2EY432J	595 581 0479	24- 84	AA	DD		C
VRD-HT2EY472J	507 581 5018	24- 85	AA	DD		C
VRD-ST2CD103J	501 581 0044	30- 91	AA	DD		C
VRD-ST2CD104J	501 581 0042	30- 92	AA	DD		C
VRD-ST2CD105J	588 581 0103	30- 93	AA	DD		C
VRD-ST2CD122J	596 581 0155	30- 94	AA	DD		C
VRD-ST2CD123J	571 580 0129	30- 95	AA	DD		C
VRD-ST2CD153J	572 581 0195	30- 96	AA	DD		C
VRD-ST2CD181J	578 580 0045	30- 97	AA	DD		C
VRD-ST2CD182J	596 581 0154	30- 98	AA	DD		C
VRD-ST2CD183J	578 580 0046	30- 99	AA	DD		C
VRD-ST2CD223J	588 581 0119	30-100	AA	DD		C
VRD-ST2CD224J	572 580 1138	30- 92	AB	DD	N	C
VRD-ST2CD274J	572 580 1139	30-101	AB	DD	N	C
VRD-ST2CD330J	578 580 0047	30-102	AA	DD		C
VRD-ST2CD331J	572 581 0201	30-103	AA	DD		C
VRD-ST2CD333J	596 581 0144	30-104	AA	DD		C
VRD-ST2CD334J	572 580 1140	30-101	AB	DD	N	C
VRD-ST2CD394J	572 580 1141	30-105	AB	DD	N	C
VRD-ST2CD472J	572 581 0200	30-106	AA	DD		C
VRD-ST2CD473J	596 581 0146	30-107	AA	DD		C
VRD-ST2CD474J	578 580 0049	30-108	AA	DD		C
VRD-ST2CD562J	501 581 0041	30-109	AA	DD		C
VRD-ST2CD563J	572 580 1142	30-110	AB	DD	N	C
VRD-ST2CD681J	572 580 1143	30-111	AB	DD	N	C
VRD-ST2CD684J	572 580 1144	30-101	AB	DD	N	C
VRD-ST2CD822J	572 581 0206	30-112	AA	DD		C
VRD-ST2EF105J	572 580 1145	30-113	AB	DD	N	C
VRD-ST2EF155J	578 580 0051	30-114	AA	DD		C
VRD-ST2HF104J	571 580 0130	30-115	AA	DD		C
VRH-ST2HB157K	572 581 1817	13- 2	AD	DJ		C
VRNHT2EK2401F	585 581 0102	24- 86	AA	DD		C
VRNHT2EK4301F	572 581 1879	24- 86	AB	DD	N	C
VRS-HT3DA102J	588 581 0145	24- 89	AA	DD		C
VRS-HT3DA1R0J	567 581 0073	24- 88	AB	DD		C
VRS-HT3DAR22J	572 581 0135	24- 87	AA	DD		C
VRS-TP2BD000J	507 581 5003	25- 16	AA	DD		C
VRS-TS2AD000J	500 581 5090	24- 90	AA	DD		C
VRS-TS2AD100J	501 581 5008	24- 91	AA	DD		C
VRS-TS2AD101J	500 581 5047	24- 92	AA	DD		C
〃	500 581 5047	25- 17	AA	DD		C
VRS-TS2AD102F	595 581 0169	24- 93	AA	DD		C
VRS-TS2AD102J	595 581 0137	24- 94	AA	DD		C
〃	595 581 0137	25- 18	AA	DD		C
VRS-TS2AD103F	595 581 0139	24- 95	AA	DD		C
VRS-TS2AD103J	501 581 5009	24- 96	AA	DD		C
〃	501 581 5009	25- 19	AA	DD		C
VRS-TS2AD105F	594 581 0233	24- 97	AB	DD		C
VRS-TS2AD121J	578 581 0014	25- 20	AA	DD		C
VRS-TS2AD122J	500 581 5053	24- 98	AA	DD		C
VRS-TS2AD151J	572 581 0442	25- 21	AA	DD		C
VRS-TS2AD152J	500 581 5043	24- 99	AA	DD		C
〃	500 581 5043	25- 22	AA	DD		C
VRS-TS2AD153J	595 581 0192	24-100	AA	DD		C
VRS-TS2AD202J	596 581 0126	24-101	AA	DD		C
VRS-TS2AD203J	501 581 5010	24-102	AA	DD		C
VRS-TS2AD205J	500 581 5092	24-103	AB	DD		C
VRS-TS2AD242J	578 581 0026	24-104	AA	DD		C
VRS-TS2AD273J	500 581 0463	24-105	AA	DD		C
VRS-TS2AD300J	595 581 0284	24-106	AA	DD		C
VRS-TS2AD301J	595 581 0285	24-107	AA	DD		C
VRS-TS2AD331J	579 581 0093	24-108	AA	DD		C
VRS-TS2AD332J	500 581 5049	24-109	AA	DD		C
VRS-TS2AD333J	501 581 5012	24-110	AA	DD		C
VRS-TS2AD393J	595 581 0036	24-111	AA	DD		C
VRS-TS2AD470J	595 581 0326	24-112	AA	DD		C
VRS-TS2AD472J	501 581 5013	24-113	AA	DD		C
〃	501 581 5013	25- 23	AA	DD		C
VRS-TS2AD473J	500 581 5051	24-114	AA	DD		C
VRS-TS2AD510J	595 581 0323	24-115	AA	DD		C
VRS-TS2AD511J	595 581 0296	25- 24	AA	DD		C
VRS-TS2AD512J	595 581 0298	24-116	AA	DD		C
VRS-TS2AD621F	572 581 1822	24-117	AA	DD		C

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VRS-TS2AD621J	595 581 0340	24-118	AA	DD		C
VRS-TS2AD680J	596 581 0094	24-119	AA	DD		C
VRS-TS2AD751J	595 581 0309	24-120	AA	DD		C
VRS-TS2AD752J	595 581 0312	24-121	AA	DD		C
VRS-TS2AD912J	595 581 0293	24-122	AA	DD		C
VS2SA1036KQRC	507 576 5013	24-125	AB	DD		B
VS2SA1175H/-1	572 576 0524	30-116	AC	DJ	N	B
VS2SA1920P/-1	572 576 0521	30-117	AE	DS	N	B
VS2SC1213-C1A	541 576 0006	30-118	AC	DD		B
VS2SC2785F/-1	572 576 0525	30-119	AC	DJ	N	B
VS2SD1266AP-1	572 576 0522	30-120	AK	DX	N	B
VS2SK1944//-1	572 576 0526	30-121	AS	EZ	N	B
VS2SK2081//1A	572 576 0523	30-121	AR	EQ	N	B
VSDTA143XK/-1	596 576 0016	24-123	AB	DD		B
VSDTB113ZK/-1	593 576 0375	25- 25	AD	DJ		B
VSDTC114EKA-1	595 576 0491	24-124	AC	DJ		B
【X】						
XBBSD30P04000	541 970 5027	14- 21	AA	DD		C
XBBSD30P08000	571 970 0241	6- 8	AA	DD		C
〃	571 970 0241	10- 29	AA	DD		C
〃	571 970 0241	18- 34	AA	DD		C
XBBSD40P06000	572 970 0626	14- 1	AA	DD		C
XBBSE30P08000	595 970 0129	1- 9	AA	DD		C
〃	595 970 0129	12- 24	AA	DD		C
XBPSC30P06ES0	572 970 1939	19- 4	AA	DD	N	C
XBPSC30P06K00	541 970 0046	10- 17	AA	DD		C
XBPSD20P18000	572 970 1940	16- 5	AA	DD	N	C
XBPSD30P05K00	541 970 5005	5- 5	AA	DD		C
XBPSD30P06KS0	541 970 0016	18- 24	AA	DD		C
XBPSD30P08KS0	541 970 1097	11- 37	AA	DD		C
XBPSD30P10KS0	541 970 0017	13- 10	AB	DD		C
XBPSD40P06KS0	502 970 0010	8- 3	AA	DD		C
XEBSD30P06000	578 970 0102	7- 1	AA	DD		C
〃	578 970 0102	10- 15	AA	DD		C
〃	578 970 0102	18- 13	AA	DD		C
〃	578 970 0102	20- 5	AA	DD		C
XEBSD30P06KS0	572 970 1941	17- 15	AA	DD	N	C
XEBSD30P08000	578 970 0105	19- 8	AA	DD		C
XEBSD30P10000	578 970 0106	4- 10	AA	DD		C
〃	578 970 0106	10- 10	AA	DD		C
〃	578 970 0106	12- 10	AA	DD		C
XEBSD30P12000	572 970 0571	7- 8	AA	DD		C
XEBSD30P30000	572 970 0586	10- 11	AA	DD		C
XEBSD40P06000	572 970 1363	8- 6	AA	DD		C
XEBSD40P12000	578 970 0084	10- 30	AA	DD		C
XEBSE30P06000	578 970 0082	4- 8	AA	DD		C
〃	578 970 0082	17- 30	AA	DD		C
XEBSE30P08000	595 970 0121	1- 3	AA	DD		C
〃	595 970 0121	3- 9	AA	DD		C
〃	595 970 0121	13- 41	AA	DD		C
〃	595 970 0121	15- 2	AA	DD		C
〃	595 970 0121	16- 2	AA	DD		C
〃	595 970 0121	17- 8	AA	DD		C
〃	595 970 0121	18- 11	AA	DD		C
〃	595 970 0121	21- 9	AA	DD		C
XEBSE30P10000	595 970 0122	11- 4	AA	DD		C
〃	595 970 0122	11- 44	AA	DD		C
〃	595 970 0122	12- 14	AA	DD		C
XEBSE30P12000	595 970 0345	11- 40	AA	DD		C
〃	595 970 0345	13- 31	AA	DD		C
XEBSE40P12000	572 970 1447	1- 5	AA	DD		C
〃	572 970 1447	6- 21	AA	DD		C
〃	572 970 1447	11- 35	AA	DD		C
〃	572 970 1447	12- 15	AA	DD		C
〃	572 970 1447	17- 32	AA	DD		C
〃	572 970 1447	18- 36	AA	DD		C
XEPSD20P18000	572 970 1943	15- 5	AB	DD	N	C
XEPSD30P06X00	595 970 0301	17- 28	AA	DD		C
〃	595 970 0301	18- 47	AA	DD		C
XESSD30P10000	572 970 1929	12- 11	AA	DD	N	C
XHBSE30P06000	578 970 0070	4- 7	AA	DD		C
〃	578 970 0070	12- 1	AA	DD		C
〃	578 970 0070	17- 4	AA	DD		C
〃	578 970 0070	18- 23	AA	DD		C
XHBSE30P08000	595 970 0163	5- 13	AA	DD		C
〃	595 970 0163	6- 1	AA	DD		C
XPSSJ20-07000	572 218 0379	11- 12	AA	DD		C
〃	572 218 0379	17- 10	AA	DD		C
〃	572 218 0379	18- 6	AA	DD		C
XPSSJ30-12000	572 218 0125	5- 24	AB	DD		C
XRESP30-04000	571 399 0015	13- 39	AA	DD		C

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			Ex.	Ja.		
XRESP30-06000	541 399 5002	4- 16	AA	DD		C
XRESP40-05000	572 399 0053	5- 11	AA	DD		C
XRESP40-06000	509 399 5001	11- 14	AA	DD		C
〃	509 399 5001	17- 7	AA	DD		C
〃	509 399 5001	18- 2	AA	DD		C
〃	509 399 5001	21- 7	AA	DD		C
XRESP50-06000	572 399 0063	5- 22	AA	DD		C
〃	572 399 0063	11- 6	AA	DD		C
XRESP70-08000	571 399 0027	5- 17	AA	DD		C

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